## METAL PRODUCTS MANUFACTURING

Serving the Appliance and Fabricated Metal Products Industry

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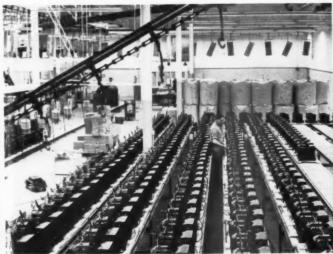
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MAY 31 1964 TECHNOLOGY BEPARTMENT W.18 # G.

**JUNE 1961** 



New Engineering Service for Appliance Manufacturers — Page 40



so of Columbus: A Story of Growth - Page 47



How to Porcelain Enamel Magnesium - Page 60

## TLC\* dryer control is TIMER-less...and TROUBLE-less

## Just set the dryness and FORGET THE TIMER

... because there is no timer in Robertshaw's TLC\* dryer control system. And this means there is no timer to set, service, adjust or get out of whack!

TLC control means TIMER-less control . . . TROUBLE-less control . . . and tender, loving care for even the daintiest things. Yes . . . just set the dryness and forget the timer . . . Robertshaw's TLC dryer control does all the rest. Any size load, any fabric and any mix is dried exactly as desired . . . and even gently fan-cooled. No more underdrying . . . no more over-drying . . . and all the problems of timer-type dryer controls are eliminated.

Want more details? Write to Department MP, Robertshaw Thermostat Division, Robertshaw-Fulton Controls Company, Youngwood, Pennsylvania. Canadian Affiliate: Robertshaw-Fulton Controls Company, Limited, Toronto.



... the name that MEANS temperature control

\*Trade Mark — Robertshaw TIMER-less control system for any dryer (available on 1982 dryers)

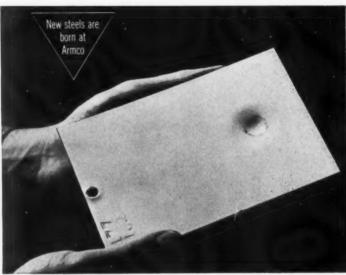




Capitalize on high customer acceptance of steel; put the distinctive Steelmark on the products you make.

## Two Armco Enameling Grades Backed By 51 Years of Research, Experience





More than a half-century of intensive research has gone into the development and improvement of Armco's special base metals for porcelain enameling. Armco Enameling Iron, for standard two-coat applications, has long been known as the "world's standard." Now Armco Univit® is available for directon application of finish coats.

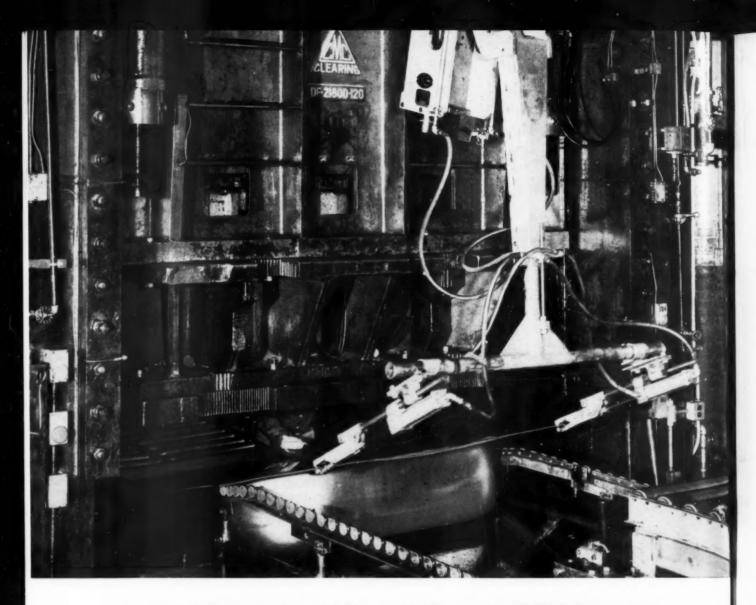
The first special Armco base metal was successfully porcelain enameled in 1910. Since then, more Armco Enameling Iron has been used by more porcelain enamelers than any other special base metal.

Whether you use two-coat or one-coat enameling practice, Armco's knowledge and experience assure you the finest in uniform enameling base metals, plus the know-how to help you solve fabricating or enameling problems. Armco Steel Corporation, 1421 Curtis Street, Middletown, Ohio.



**Armco Division** 

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## KERNS UNITED SOLVES MAJOR PROBLEM IN DRAWING BATHTUBS AT KAISER METAL... WITH SAVINGS BEYOND EXPECTATIONS!

Determined to make bathtubs from cold rolled stock, Kaiser decided to turn the project over to Kerns United. Even though others experimented for over 7 months with little success, Kerns United, in a few short weeks proved to Kaiser's management that bathtubs could be drawn from cold rolled stock using Kerns "DRY-FILM" Drawing Compound.

The resultant savings to Kaiser were beyond all predictions. Compound costs were greatly reduced ... Use of "DRY-FILM" reduced bathtub scrap from 7% to less than 1% ... Reduction in size of deep tub blank

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See the results of a specialized lubricant in your plant at no cost by taking advantage of Kerns Memo Billing Trial Basis.

Write now for Portfolio on "Proper Handling and Application of DRY-FILM Drawing Compound."



World's largest Exclusive Manufacturer of Specialized Industrial Lubricants.

## KERNS UNITED Corporation

2659 East 95th Street • Chicago 17, Illinois

Subsidiary: KERNS PACIFIC Corporation, 630 N. Batavia St., Orange, California Offices in Principal Cities throughout the U.S.A.

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## MANUFACTURING METAL PRODUCTS

FROM RAW METAL TO FINISHED PRODUCT

A trade publication devoted to the interests of the metal products manufacturing industry with special editorial attention to home appliances. The editorial scope covers design, engineering, market and statistical information and technical engineering, market and statistical information and technical and practical information on plant facilities and all phases of manufacturing "from raw metal to finished product." Free controlled circulation to top management, sales management, purchasing, engineering and key plant management and supervision in metal product manufacturing plants. To others, subscription price is \$10.00 per year, domestic. To all other countries \$15.00 per year (U.S. funds). Single copies, \$1.00.

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war on

## spalling

Lead's secret weapon: its ability to promote good bonding of porcelain enamel to aluminum at the necessary low firing temperatures. This stops spalling from spreading in a cut or damaged area on appliances, parts, and housings for industrial and consumer products.

Team up lead-frit porcelain enamel with aluminum's workability and lightness and you have a material that can be cut, sawed, sheared and drilled-right on the production line!

Finishes keep looking like new through years of service, despite exposure to heat, abrasive wear, detergents, mild alkalis and acids.

Lead helps porcelain enamel beautify as it protects. This results in colorfast finishes, tough and even.

Why not explore the possibilities of using lead in combination with the metals you work with? Write Lead Industries Association for your copy of Lead in the Ceramic Industries. Address: 292 Madison Avenue, New York 17, New York.



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## MAHON'S INDUSTRIAL EQUIPMENT DIVISION . . .

## designs equipment but engineers results

from start to any finish your products require . . . in a coordinated, fully responsible, one-source service

The 'finishing touch' of Mahon means more than just painting equipment—it means peak-efficiency methods for the best finishing of quality products. Mahon's Industrial Equipment Division provides a unique one-contract service that is safe, sure—and more often than not, the most economical—answer to any industrial finishing problem. Mahon's multiple-area benefits are worth investigating. Get in touch with Mahon and prove it for yourself.

## Mahon industrial equipment

complete finishing systems • metal-cleaning equipment • pickling equipment • painting facilities—spray, dip and flow coating • drying and processing ovens • special process equipment

2 fabrication
of approved design is made, tested,
shipped and installed by one organiation—Mahon . . . to facilitate use,



3 erection & installation of equipment and structures is speeded by skilled Mahon crews, completely familiar with finishing systems.



4 service
by Mahon means constant, troublefree production of your quality products for maximum investment return.



WRITE FOR MAHON CATALOG A-661-ALSO IN SWEET'S P. E. FILE YOUR BIGGEST VALUE IS IN MAHON'S PLANNING & ENGINEERING EXPERIENCE

THE R. C. MAHON COMPANY

DETROIT 34, MICHIGAN

MANUFACTURING PLANTS—
Detroit, Michigan and Torrance, California
SALES-ENGINEERING OFFICES—Detroit, New York, Chicago, Cleveland,
San Francisco, Torrance and E. Orange, N. J.

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## NATIONAL LOCK

INDUSTRIAL HARDWARE DIVISION . NATIONAL LOCK COMPANY . ROCKFORD, ILLINOIS

INTERNATIONAL DIVISION . 13 E. 40TH ST., NEW YORK, N. Y.

CABLE: ARLAB

HINGES . CASTERS . DIE CASTINGS . CATCHES . PLASTIC COMPONENTS . FASTENERS . . . ALL FROM 1 SOURCE

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AS VERSUS ELECTRICITY . . . IS AN OLD, OLD STORY in the appliance industry. Back in 1926, when I first cut my teeth on appliance selling, one of the first fundamentals it was necessary to learn was that electricity and gas were not to be mentioned in the same breath. Even in combination companies, jealousy between the two fuels was evident.

One would think that three decades later, this strong feeling could be erased from the appliance industry, particularly when many of the larger manufacturers of home appliances build for both fuels and when a number of major appliances are neither gas nor electric, but both.

## Live and let live

We at MPM hold no brief for any type of fuel, and it is the job of our editors to guard this policy carefully. On the other hand, we do have a very, very strong interest in increased production and sales of home appliances, and it is our strong belief that a constructive approach in advertising and selling will bring the greatest return to all competitive factors.

We believe, for example, that AHLMA has taken a constructive step in developing a set of Recommended Advertising Practices. It would seem a constructive move if other divisions of the appliance industry would follow suit at the appropriate time.

We are not interested in pointing a finger at any individual who may have developed an accepted advertising theme, and certainly it is not our intent to question the desirability of cooperative advertising programs as developed and financed by leading associations and manufacturing groups in the appliance and allied fields.

Such campaigns as "Live Better Electrically" and "C. P. Range Program," when backed by constructive copy, can do much for the appliance industry.

## Derogatory advertising — "scare copy"

We have before us a double-page spread from the current issue of The Saturday Evening Post, in which the heading reads, "Only electricity provides flameless water heating," and the body copy starts with the sentence, "Your good sense tells you how safe flameless electric water heating is for your family . . . ."

We don't believe that this copy will sell water heaters, but we do believe it will raise the blood pressure of a great many executives in the gas utility field.

If this advertising is logical, then wouldn't it be logical to read in opposing advertising, representing the gas industry. such headings as "Only gas provides shock-free appliances, with the picture of a child in a bathtub touching the switch to an electric heater. Certainly this is a silly suggestion, and we hope that everyone reading it will consider it as such.

Now let's stay on the gas side of the fence and ask how many MPM readers have read, "Confessions of a twice-fooled wife!" as published by National LP Gas Council. The LP gas industry says this booklet is on its way to becoming a best seller. The "Confessions" booklet is a homemaker's story on how she was "taken in" twice by electrical sales propaganda. Point by point, she then contrasted the shortcomings she found in electricity with the advantages of using LP gas.

THE ACCOMPANYING EDITORIAL has just been pulled from the MPM files. As may be obvious from references to specific advertising and literature, this editorial was written over six months ago, but at that time was shelved in favor of "must" material in a jam-packed issue.

Current discussion in regard to the "flameless" advertising led us to authorize its publication in this issue.

Mort Farr, owner of Mort Farr, Inc., appliance dealership in Upper Darby, Pa., and chairman, board of directors, NARDA, has been quite candid in his comment concerning the electrical industry campaign. He spoke before AHLMA at its recent meeting and a few days later commented quite strongly to the Consumer Products Div. of NEMA.

In speaking before AHLMA, Farr referred to an 80 percent dryer market yet to be developed. He said, "Must we continue to have the battle of the fuels between gas and electric when after 17 years we have reached a saturation of only 19.6 percent? The battle is not, I contend, between gas and electric, but between dryers (regardless of the fuel) and a 25¢ clothes line."

After hearing of plans at the NEMA meeting for an expenditure of \$53 million by the electrical industry (EEI, utilities, appliance companies, etc.) and for a continuation of the "flameless" theme, Mr. Farr was quite specific in saying that the dealers don't want it. He favors promotion of top-of-the-line appliances featuring such advantages as no-frost and automatic icemakers for refrigerators and parallel features for other appliances.

It would seem that the accompanying six-month-old material is just as timely today as it was when originally written.

It is our contention that electricity, gas, LP-Gas, yes, and oil, have a logical place in today's appliance picture. Appliances of today are built to operate satisfactorily and safely with all of these fuels, and we believe that the appliance manufacturer would be the first to agree to this, or fewer would be making products for more than one fuel.

It would seem that the appliance manufacturers could do great service to themselves, to the utilities, and eventually boost the confidence of the appliance buyer by using their influence to insist on constructive advertising both at the individual company level and at the cooperative level.

We believe more appliances of all types would be sold by stressing the usefulness of the product to be sold, rather than by questioning (even by inference) the value of competing products. We now have solid evidence of successful 'bridging the gap" between gas and electricity by manufacturers of home appliances, and the next good step forward would be the adherence to constructive advertising and selling practices.

MPM welcomes rebuttals to critical opinions expressed in editorials.

## IN PRODUCTION EQUIPMENT FOR

## Ceramics

important progressive changes are under way at ....



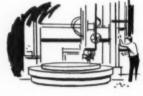
**Research!** Every product line from the Conaform dryers to the smallest mixing equipment is being thoroughly researched, and analyzed to produce a better piece of equipment for the lowest possible cost. Lower burden helps reduce your price, but better engineering is producing a better product.



**Design!** Experienced designers are busy creating a new look, a new form, a new serviceability in the Patterson Line of products for industry.



**Mechanization!** Thousands of dollars are being poured into new equipment, new facilities to enable Patterson to comfortably produce a mixer, a group of processing equipment, or an entire production facility. Before you buy, be sure to check the savings you'll get at Patterson.



**Efficiency!** New work standards, automatic machinery, new equipment means greater efficiency — better work flow — better delivery. The important changes under way at Patterson mean big savings and better processing equipment for you!



Yes, Patterson is rapidly becoming one of America's leading sources of processing equipment for the Ceramics industry. In every department men are busy with welding torches, milling machines, chip-removal machines, building for finest equipment possible at really great savings. Regardless of your previous practices it will pay to discuss your program with Patterson's engineer-trained sales representatives.



FOUNDRY AND MACHINE COMPANY
East Liverpool, Ohio, U. S. A.

NEW YORK - BOSTON - BALTIMORE - PHILADELPHIA - PITTSBURGH - CLEVELAND - DETROIT - CINCINNATI ATLANTA - CHICAGO - ST. LOUIS - HOUSTON - TULSA - DENVER - LOS ANGELES - SAN FRANCISCO - SEATTLE

The Patterson Foundry and Machine Company, (Canada) Limited

Toronto, Canada - Montreal

Circle No. 345 on Reader Service Cord.

## Pauleisoin

FOUNDRY & MACHINE COMPANY



ALLES ALLES ALLES

## AND AGGLOMERATION

A major spark plug manufacturer uses Patterson-International extruders exclusively to produce a completely homogeneous, lump-free porcelain. These extruders with a built in pug mill extrude almost any material plastic enough to flow. Many exclusive quality features are to be found in this equipment. Extruded bar diameters range from ½" to 18" or more, available with steam or water jackets and variable drives. Ask for bulletin 62-B for complete details.

TURN THE PAGE

FOR MORE INFORMATION

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Patterson Foundry & Machine Company

Gentlemen:

Please arrange to contact us about a\_

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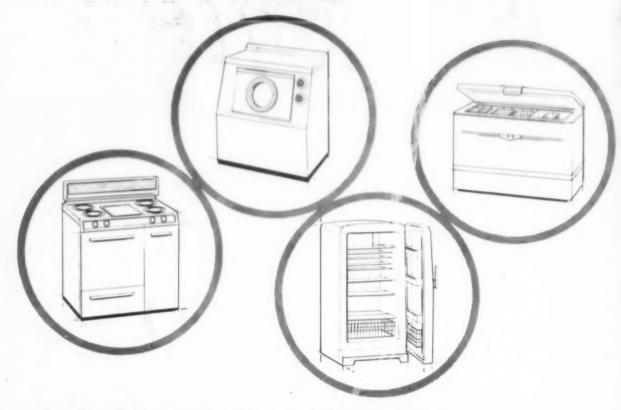
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TOF A SERIES
NOTES FROM A DESIGNER'S SKETCH BOCK



## STEVENS Major Appliance\* THERMOSTATS

Leading major appliance manufacturers are turning to Stemco Commercial Thermostats in increasing numbers for the same reasons that have made Stevens the big name in table appliances: Fresh, creative thermostat designs that perform better, longer . . . broad product line that enables appliance designers to satisfy all special requirements with a production line thermostat, or minor modification thereof . . . meticulous testing, calibration and quality control that banish service problems . . . realistic pricing for volume. Contact our Applications Engineering Dept. for solution to your thermostatic control problems.

\*Table appliances, too: Skillets, saucepans, griddles, inhalers, fans, steam and flat irons, roasters, fry kettles, butter warmers, waffle irons, electronic and avionic applications.

Stemco Type GP Thermostats, one of a family disc type potted thermostats for moisture resistance. Used on refrigerators, freezers, coolers, etc. Fast response and quick, snap action control.

Stemco Type GY Thermostat, one of a number of similar designs with exposed or enclosed bimetal disc for dryers, heaters, air conditioners and similar applications. Various terminals and mounting provisions.



STEVENS manufacturing company, inc.

P. O. Box 1007 · Mansfield, Ohio

THERMOSTATS

Creative designers and competitive producers of the best in bimetal thermostats

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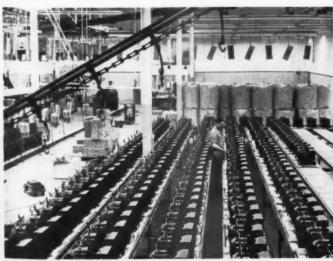
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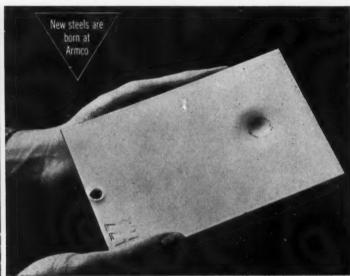


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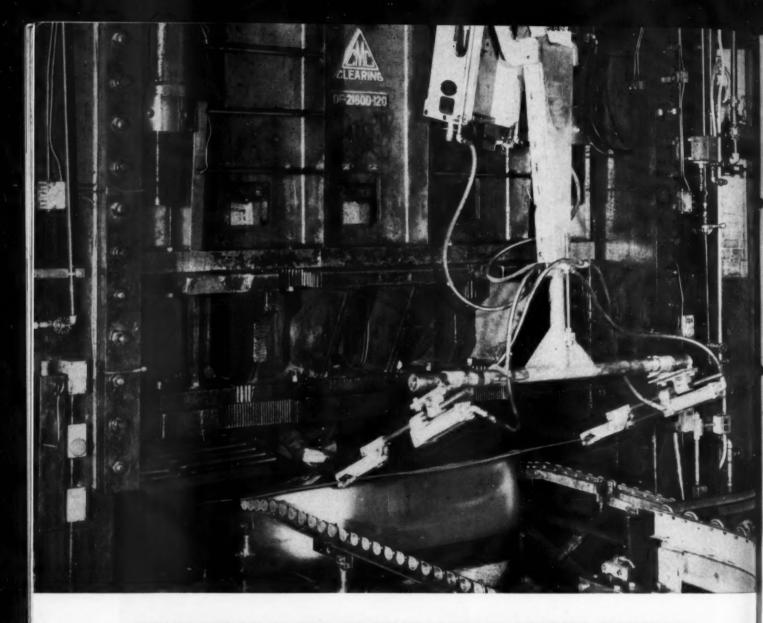
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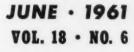
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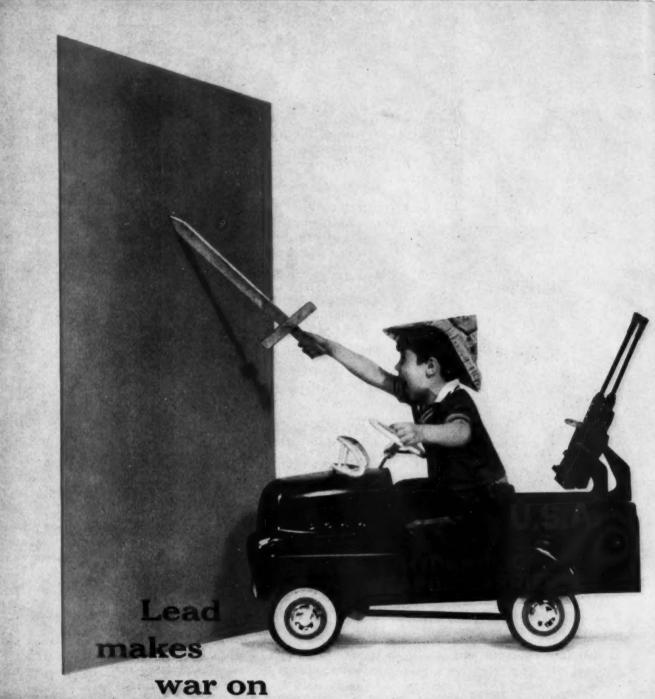
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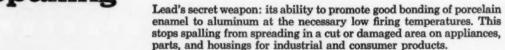
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THE R. C. MAHON COMPANY

DETROIT 34, MICHIGAN

MANUFACTURING PLANTS— Detroit, Michigan and Torrance, California SALES-ENGINEERING OFFICES—Detroit, New York, Chicago, Cleveland, San Francisco, Torrance and E. Orange, N. J.

MAHON

Circle No. 332 on Reader Service Card.



## NATIONAL LOCK

INDUSTRIAL HARDWARE DIVISION • NATIONAL LOCK COMPANY • ROCKFORD, ILLINOIS
INTERNATIONAL DIVISION • 13 E. 40TH ST., NEW YORK, N. Y. • CABLE: ARLAB

HINGES . CASTERS . DIE CASTINGS . CATCHES . PLASTIC COMPONENTS . FASTENERS . . . ALL FROM 1 SOURCE

As VERSUS ELECTRICITY... IS AN OLD, OLD STORY in the appliance industry. Back in 1926, when I first cut my teeth on appliance selling, one of the first fundamentals it was necessary to learn was that electricity and gas were not to be mentioned in the same breath. Even in combination companies, jealousy between the two fuels was evident.

One would think that three decades later, this strong feeling could be erased from the appliance industry, particularly when many of the larger manufacturers of home appliances build for both fuels and when a number of major appliances are neither gas nor electric, but both.

## Live and let live

We at MPM hold no brief for any type of fuel, and it is the job of our editors to guard this policy carefully. On the other hand, we do have a very, very strong interest in increased production and sales of home appliances, and it is our strong belief that a constructive approach in advertising and selling will bring the greatest return to all competitive factors.

We believe, for example, that AHLMA has taken a constructive step in developing a set of Recommended Advertising Practices. It would seem a constructive move if other divisions of the appliance industry would follow suit at the appropriate time.

We are not interested in pointing a finger at any individual who may have developed an accepted advertising theme, and certainly it is not our intent to question the desirability of cooperative advertising programs as developed and financed by leading associations and manufacturing groups in the appliance and allied fields.

Such campaigns as "Live Better Electrically" and "C. P. Range Program," when backed by *constructive* copy, can do much for the appliance industry.

## Derogatory advertising — "scare copy"

We have before us a double-page spread from the current issue of *The Saturday Evening Post*, in which the heading reads, "Only electricity provides flameless water heating," and the body copy starts with the sentence, "Your good sense tells you how safe flameless electric water heating is for your family . . . ."

We don't believe that this copy will sell water heaters, but we do believe it will raise the blood pressure of a great many executives in the gas utility field.

If this advertising is logical, then wouldn't it be logical to read in opposing advertising, representing the gas industry, such headings as "Only gas provides shock-free appliances," with the picture of a child in a bathtub touching the switch to an electric heater. Certainly this is a silly suggestion, and we hope that everyone reading it will consider it as such.

Now let's stay on the gas side of the fence and ask how many MPM readers have read, "Confessions of a twice-fooled wife!" as published by National LP Gas Council. The LP gas industry says this booklet is on its way to becoming a best seller. The "Confessions" booklet is a homemaker's story on how she was "taken in" twice by electrical sales propaganda. Point by point, she then contrasted the shortcomings she found in electricity with the advantages of using LP gas.

THE ACCOMPANYING EDITORIAL has just been pulled from the MPM files. As may be obvious from references to specific advertising and literature, this editorial was written over six months ago, but at that time was shelved in favor of "must" material in a jam-packed issue.

Current discussion in regard to the "flameless" advertising led us to authorize its publication in this issue.

Mort Farr, owner of Mort Farr, Inc., appliance dealership in Upper Darby, Pa., and chairman, board of directors, NARDA, has been quite candid in his comment concerning the electrical industry campaign. He spoke before AHLMA at its recent meeting and a few days later commented quite strongly to the Consumer Products Div. of NEMA.

In speaking before AHLMA, Farr referred to an 80 percent dryer market yet to be developed. He said, "Must we continue to have the battle of the fuels between gas and electric when after 17 years we have reached a saturation of only 19.6 percent? The battle is not, I contend, between gas and electric, but between dryers (regardless of the fuel) and a 25¢ clothes line."

After hearing of plans at the NEMA meeting for an expenditure of \$53 million by the electrical industry (EEI, utilities, appliance companies, etc.) and for a continuation of the "flameless" theme, Mr. Farr was quite specific in saying that the dealers don't want it. He favors promotion of top-of-the-line appliances featuring such advantages as no-frost and automatic icemakers for refrigerators and parallel features for other appliances.

It would seem that the accompanying six-month-old material is just as timely today as it was when originally written.

It is our contention that electricity, gas, LP-Gas, yes, and oil, have a logical place in today's appliance picture. Appliances of today are built to operate satisfactorily and safely with all of these fuels, and we believe that the appliance manufacturer would be the first to agree to this, or fewer would be making products for more than one fuel.

It would seem that the appliance manufacturers could do a great service to themselves, to the utilities, and eventually boost the confidence of the appliance buyer by using their influence to insist on *constructive* advertising both at the individual company level and at the cooperative level.

We believe more appliances of all types would be sold by stressing the usefulness of the product to be sold, rather than by questioning (even by inference) the value of competing products. We now have solid evidence of successful "bridging the gap" between gas and electricity by manufacturers of home appliances, and the next good step forward would be the adherence to constructive advertising and selling practices.

MPM welcomes rebuttals to critical opinions expressed in editorials.

Dava Chase

## IN PRODUCTION EQUIPMENT FOR

## Ceramics

## important progressive changes are under way at ....



**Research!** Every product line from the Conaform dryers to the smallest mixing equipment is being thoroughly researched, and analyzed to produce a better piece of equipment for the lowest possible cost. Lower burden helps reduce your price, but better engineering is producing a better product.



**Design!** Experienced designers are busy creating a new look, a new form, a new serviceability in the Patterson Line of products for industry.



**Mechanization!** Thousands of dollars are being poured into new equipment, new facilities to enable Patterson to comfortably produce a mixer, a group of processing equipment, or an entire production facility. Before you buy, be sure to check the savings you'll get at Patterson.

**Efficiency!** New work standards, automatic machinery, new equipment means greater efficiency — better work flow — better delivery. The important changes under way at Patterson mean big savings and better processing equipment for you!



Yes, Patterson is rapidly becoming one of America's leading sources of processing equipment for the Ceramics industry. In every department men are busy with welding torches, milling machines, chip-removal machines, building for finest equipment possible at really great savings. Regardless of your previous practices it will pay to discuss your program with Patterson's engineer-trained sales representatives.



FOUNDRY AND MACHINE COMPANY East Liverpool, Ohio, U. S. A.

NEW YORK • BOSTON • BALTIMORE • PHILADELPHIA • PITTSBURGH • CLEVELAND • DETROIT • CINCINNATI ATLANTA • CHICAGO • ST. LOUIS • HOUSTON • TULSA • DENVER • LOS ANGELES • SAN FRANCISCO • SEATTLE

The Patterson Foundry and Machine Company, (Canada) Limited

Toronto, Canada - Montreal

Circle No. 345 on Reader Service Card.

# COMPA VAC-AIRE DE-AIRING FOR EXTRUSION

## AND AGGLOMERATION

A major spark plug manufacturer uses Patterson-International extruders exclusively to produce a completely homogeneous, lump-free porcelain. These extruders with a built in pug mill extrude almost any material plastic enough to flow. Many exclusive quality features are to be found in this equipment. Extruded bar diameters range from 1/8" to 18" or more, available with steam or water jackets and variable drives. Ask for bulletin 62-B for complete details.

TURN THE PAGE
FOR MORE INFORMATION

## Patterson Foundry & Machine Company

Gentlemen:

Please arrange to contact us about a\_\_\_\_\_

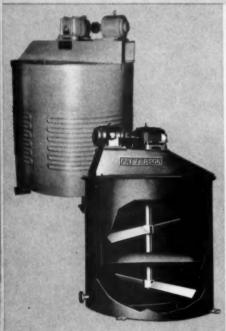
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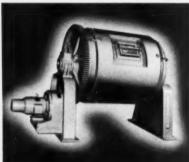
COMPANY\_\_\_\_

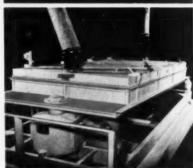
CITY STATE

## 

## for the Ceramics Industry







## Enamel Storage Tanks

These "standard design" tanks are available with plain steel, stainless steel or Porox linings. Patterson can supply these promptly in sizes from 124 to 716 gallons and larger with fan-cooled motors and specially designed baffles and paddles.

America's number one portable agitator features quality construction at very economical prices! Built for continuous heavy-duty service, **Typhoon** Mixers handle a vast range of mixing operations and materials. Completely portable — light weight. Direct-drive models handle solutions 500 centipoises to 4000 centipoises. Geared-drive — open or explosion proof motors.

"Typhoon" Portable Power Mixers

## Pebble Mills (5 to 5000 gallon capacities)

Patterson Pebble Mills are considered the industry standard. Perfected through 80 years of continuous research, this rugged mill consists of extremely strong steel heads, heavy-duty self-aligning oversize main bearings and accurately made shells, very efficient drives. Optional equipment includes thermal control, vacuum and heating and cooling. Jacketing to provide controlled temperatures from 0° to 500°F. (All types of lining and grinding media are available from Patterson.)

## **Gyro-Centric Screens**

Designed for economical screening and classifying operations for incorporation in fine chemical systems. Patterson can build a Gyro-Centric screen for any capacity or number of separations, four basic type, twenty-four sizes. Adoptable for all screening needs.





## **BUSINESS REPLY MAIL**

FIRST CLASS PERMIT NO. 22, EAST LIVERPOOL, OHIO

Patterson Foundry & Machine Company

East Liverpool, Ohio



## AN EYE TO THE FUTURE



## HOMMEL'S FORMULA FOR EXPLORING THE UNKNOWN

Looking forward in all market directions in the Ceramic Industry . . . ahead to future rewards for our customers through research, technology and more than 70 years' successful industry experience is Hommel's formula for exploring the unknown. Not too complex is it? . . . but however simple or complicated, it has proven itself through progress. If you have been exploring the unknown, and achieving less than complete success in trying to improve production level and product quality, contact your Hommel representative. Our research and technical staff may have already found the answers to your specific need.

DEPT. MPM - 661



THE O. HOMMEL CO.

PITTSBURGH 30, PA.

West Coast - 4747 E. 49th Street, Los Angeles, California

Circle No. 323 on Reader Service Card.

McKAY DIE SHEAR LINES CUT MORE THAN STEEL. The most economical and efficient shear lines in operation today, they are being used by dozens of leading metal producers, fabricators and warehouses to slash shearing costs. Here, McKay Sales Manager Joseph F. Lyden, Jr., and M. G. Slaney, Building Division Manager, The Parkersburg (W. Va.) Rig and Reel Company—one of the nation's fastest growing manufacturers of pre-engineered metal buildings—examine panel sections cut to length by the high speed McKay Die Shear Line in the background.

This is McKay



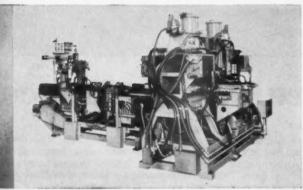
## Machine....

a recognized leader in the development and manufacture of high production metal processing equipment!

If you fabricate metals and are caught in the "profit squeeze" you'll want to know more about McKay Machine.

It was McKay Machine that pioneered automated integrated production lines, and it is McKay Machine that is today a leader in this field. We have conceived and produced complete lines for the manufacture of building panels, aircraft and missile sections, appliances, cabinets and components, automotive bodies and parts, and farm equipment—lines that are completely automated from raw material to finished part or product.

Whatever you make, if it requires metal handling, feeding, slitting, shearing, stamping, welding or forming, it's just good business to acquaint yourself with McKay Packaged Production Lines—high speed production equipment engineered to work in unison—with one-source responsibility from start to finish. Write for literature to The McKay Machine Company, Youngstown 1, Ohio.

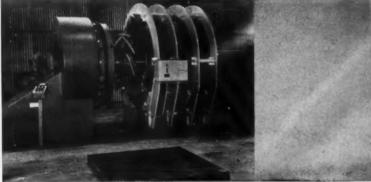


FEDERAL RESISTANCE WELDERS AND WELDING LINES, like this multi-gun combination spot and projection welder used by Hotpoint on their range production line, can be found in the plants of leading metalworking firms the nation over. Individual units, or complete resistance welding lines, are engineered to specifications by McKay's Federal-Warco Division.

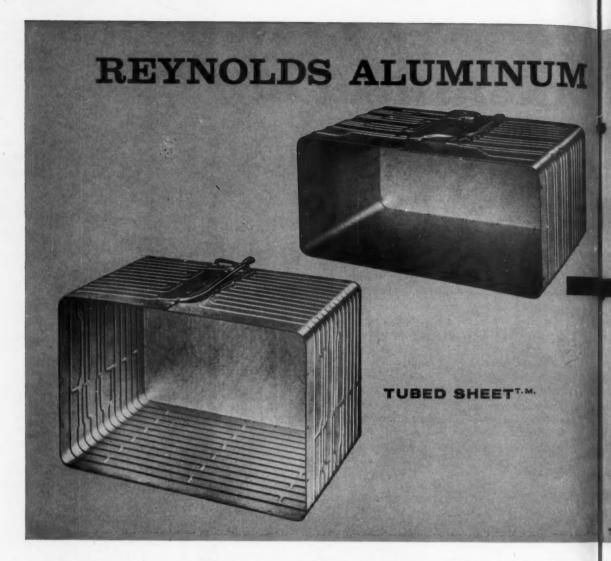


Circle No. 334 on Reader Service Card.





MERKELEY-DAVIS AUTOMATIC ARC WELDING MACHINERY produced by Berkeley-Davis, Inc., a subsidiary, is highly popular in the aircraft, rocket, automotive and appliance industries. The rocket body welder pictured here is working at Aerojet General, subsidiary of General Tire and Rubber Company.



## More Design Choice..

Every refrigerator manufacturer has his own ideas on evaporator design, it's true. But it's also true that aluminum, Reynolds Aluminum, can meet more of the requirements of more designs than any other material.

First of all, you can use Reynolds Aluminum in any of the three basic evaporator designs: Tubed Sheet, tube brazed on sheet, and finned-tube. Second, Reynolds will supply you with the raw material, or fabricate the complete evaporator. With Reynolds, you can have the added assurance of years of experience in aluminum Tubed Sheet fabrication, plus extensive facilities for producing the complete assembly.

## 5 Kinds of Tubed Sheet

Reynolds Aluminum Tubed Sheet itself is available in several forms to give the designer wide latitude in planning evaporators. It's offered with one flat side, with circuits expanded on both sides, in a single alloy, and in a bi-alloy

"sandwich". In addition, Reynolds is developing an exclusive new fabrication process for Tubed Sheet, providing larger cross sectional patterns, closer dimensional tolerances on circuitry, improved control of flow and pressure drop.

## Brazing-for Better Heat Transfer

Reynolds Aluminum tubing and sheet have long been combined in tubing brazed on sheet for evaporators and freezer plates. Brazing provides an efficient heat transfer medium between the tube and the sheet, and the aluminum itself offers economies over other metals. Aluminum's light weight offers advantages, too; it weighs ½ as much as steel or copper.

## All Reynolds Aluminum Finned-Tube

All-aluminum, all Reynolds Aluminum finnedtube gives the designer still another choice in

## FOR EVAPORATORS





## more efficiency and quality, too

evaporators; it is equally effective in frost-free refrigerators and air conditioners. Aluminum tubing has always made "design sense" for finned-tube evaporators. It is more economical than copper, and it provides excellent heat transfer. Now available with aluminum fins, it eliminates bi-metallic corrosion.

All of these basic evaporator materials have several benefits in common: being aluminum, they have excellent heat transfer characteristics; and they're lightweight and strong. So, no matter what form of Reynolds Aluminum you choose for your evaporator, you can count on its efficiency, and long, trouble-free performance.

For details on aluminum for evaporators or any refrigerator application—and for information on Reynolds styling, design, and fabricating services—call your local Reynolds office. Or write Reynolds Metals Company, P. O. Box 2346-AM, Richmond 18, Virginia.



Watch Reynolds TV show "Harrigan & Son", Fridays—ABC-TV.

Circle No. 351 on Reader Service Card.

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For the best in under-paint protection

ask Oakite

OVER 50 YEARS CLEANING EXPERIENCE . OVER 250 SERVICE MEN . OVER 160 MATERIALS

## ete line of CrysCoat processes for

## PHOSPHATING

## ... for better rust prevention ... for better paint bonding

Lock paint on...lock corrosion out: ALL Oakite CrysCoat processes do both by converting a steel surface into an integral "toothed" layer of rugged phosphate crystals. Yet they're different enough to let you job-match a pre-paint treatment to the product service conditions and to your production setup—for lowest unit costs.

There's a spray-wash or tank immersion phosphate treatment for saving on heating costs... for easy control... for faster production... for smoother paint films... for heavy duty protection. Pick the ONE that's right for you.

Oakite CRYSCOAT 47: heavy, fast-coating iron phosphate. Iron phosphating at its best. Cleans off average fabricating oils and soils as it phosphates; produces a premium quality coating. Increases corrosion resistance. Conserves spray washer time. Bulletin F-10058C.

Oakite CRYSCOAT 87: smooth, paint-saving iron phosphate. Spray setup uses only 3 stages. Saves time, equipment; easy to control. Doubles the 250 hour specified minimum of salt spray resistance. Bulletin F-10300.

Oakite CRYSCOAT 187: NEW—iron phosphate treatment. Specifically designed for application by tank immersion. Provides new detergent and solvent action to assure greater cleaning efficiency...more thorough removal of smut from steel. Has built-in pH control. Offers longer solution life.

**Longer-lasting:** These two panels were identically painted; scored with an "X" and exposed to salt spray test for 480 hours. The big difference, right-handpanel was first treated with an Oakite CrysCoat iron phosphate coating.

The painted with an Oakite CrysCoat iron phosphate coating.

Oakite CRYSCOAT 89: economical, iron phosphate. Works in spray washing machine without foaming. Easy to control, requires no stainless steel equipment. Bulletin F-10301.

Oakite CRYSCOAT HC: heavy duty zinc phosphate. For tank application. Creates a heavy zinc phosphate coating for severe service conditions. Exceeds the 150 milligram per square foot requirement; up to 1200 milligrams obtainable. Bulletin F-10305.

Oakite CRYSCOAT SW—single package zinc phosphate. No outside accelerators needed. Easy to control. For spray washer or tank application. Coatings meet Government specification MIL-C-490A Grades I and III. Offers long solution life. Bulletin F-10309.

Oakite CRYSCOAT MP—heat-saving zinc phosphate. Produces zinc phosphate coating at low temperature, on steel cadmium and zinc. Keeps sludging to a minimum. For spray washer or tanks. Bulletin F-10768.

Oakite CRYSCOAT FG—smooth, dense zinc phosphate. Develops a fine grain zinc phosphate coating. Spray washer or tank immersion. Low to moderate temperature process. Promotes a smooth paint finish. Bulletin F-10767.

The local Oakite man offers his technical service on a local basis—promptly. There are 250 like him —experienced in all phases of phosphating and its benefits. Call him in, or write for the bulletins mentioned under each pro-

cess description. Oakite Products, Inc., 17 Rector Street, New York 6, N. Y.





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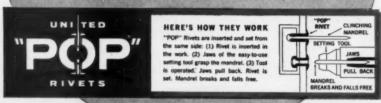


## HIGH GRIP STRENGTH

Exerting a "squeeze" between parts up to 600 pounds without distortion or danger of stripping, "POP" Rivets are ideal for every fastener application that calls for high grip strength combined with fast, economical setting. Equally important, you can always be sure of dependably high fastening quality and completely uniform clinching action, because the grip strength of "POP" Rivets depends on the carefully controlled breaking point of the setting mandrel . . . not on the strength or skill of your operators.

Remember, uniformly high grip strength with dependable fastening quality is just one of the one dozen reasons why "POP" Rivets run rings around the rest. If you're interested in improving the quality, appearance and sales appeal of your products... and reducing costs at the same time... be sure to investigate all the reasons that make "POP" the first choice for modern fastening. Write today for complete details and the name of your local "POP" Distributor.

ine "POP" Rivets Are Available Through a Large look of Distributors Throughout The Country.



SHELTON DIVISION . UNITED SHOE MACHINERY CORPORATION 1638 River Road, Shelton, Connecticut, U.S.A.

Circle No. 363 on Reader Service Card.

## editor's mail

## On standardization series

Gentlemen: I would appreciate your sending me one more copy of the April and May issues or a reprint of the entire article in METAL PRODUCTS MANUFAC-TURING.

D. J. Harrington, Manager-Marketing General Electric Co. Hudson Falls, N. Y.

This is in relation to the Standardization Series. The Editors

## The pre-shipment testing program

Gentlemen: In the May issue of METAL PRODUCTS MANUFACTURING magazine, there appeared on page 101 an article

on a pre-shipment testing program.

We are interested in the equipment described in this article and would appreciate your furnishing us with information as to where this equipment can be purchased. If it is not on the market, any additional information you might have on this testing program would be very helpful to us.

> M. I. Thomas Duralite Co., Inc. Passaic, N. J.

The article referred to by Mr. Thomas is "Pre-shipment testing program ensures safe delivery and reduces cost." Two possible sources for this equipment are: L.A.B. Corp., P. O. Box 278, Skaneateles, N. Y.; and Gaynes Engineering Co., 1642 W. Fulton St., Chicago 12, Ill.

The Editors

## About hot water

Gentlemen: I was very interested in reading your May, 1961 issue of MPM and particularly The Finish Line where you have a very fine article on "Hot Water" under the heading WATER HEATERS.

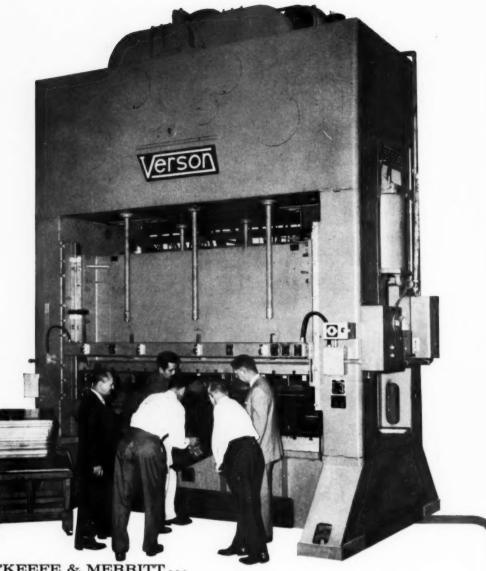
There are many items of household appliances that need hot water to operate efficiently and economically as well as making the homemaker's workload lighter in providing white fluffy wash as well as clean sparkling dishes and silverware.

In addition, and probably most important, is the health problem which can only be minimized through clean hot water at temperatures that will properly sterilize and clean dishes, glassware, silverware and clothes, as well as other equipment used by people in the home.

My sincerest appreciation to you for this very fine article.

> M. E. Morgan, Vice President Permaglas Div. A. O. Smith Corp. Kankakee, III.





AT O'KEEFE & MERRITT...

everyone's impressed by the quality of Stampings

produced by this

-Verson

300 ton Eccentric Press

As part of a long range expansion and modernization program, O'Keefe and Merritt Co., Los Angeles appliance manufacturers, have installed this 300 ton Verson Eccentric Press.

Before buying they stated their requirements as follows: The press must improve quality, eliminate excessive handling, provide uniform parts and reduce rejects, and be adaptable to fabricating a wide variety of pieces. That's a big order . . . the Verson Eccentric fills it.

Shown above are officials of the company checking the first burner box bottom for a free standing range formed in the new press. They liked what they saw . . . the press performs two operations, requires one operator, and produces a high quality stamping.

Do you have tough press requirements? You'll find that Verson can meet them. It's easy to put the Verson team to work for you. Just contact your Verson Representative.

VERSON ALLSTEEL PRESS CO.

9320 S. Kenwood Avenue, Chicago 19, Illinois 8300 S. Central Expressway, Dallas, Texas

MANUFACTURERS OF MECHANICAL AND HYDRAULIC PRESSES AND PRESS BRAKES . TRANSMAT PRESSES . IMPACT MACHINING PRESSES TOOLING . DIE CUSHIONS . VERSON WHEELON HYDRAULIC PRESSES . HYDRAULIC SHEARS . PLASTICS MOULDING PRESSES

Circle No. 367 on Reader Service Card.

## PERMA-VIEW NON-FOG WINDOWS

ARE A SMALL PART OF YOUR OVEN

BUT A
BIG SALES
FEATURE





Modern homemakers in the market for a new range have become increasingly selective. They have come to prefer a range made more attractive by clearly visible cooking. Consumer's acceptance has made PERMA-VIEW America's largest selling range window.

The window is mechanically sealed to prevent infiltration of vapors and to eliminate "fogging." The NON-FOG window meets the demand for visible cooking, and the label is recognized by the consumer as a guarantee they can depend upon.

As a practical, economical and effective component, PERMA-VIEW can be your best sales feature. Be sure to take advantage of this feature in your new models—either free-standing or built-in, and let your prospective customers know it by using the label on all of your ranges.

MILLS PRODUCTS

OUT OF OUR CARTON - INTO YOUR DOOR

1015 West Maple Road, Walled Lake, Michigan • MArket 4-1591

PERMA-V/EW
PATINGS NON-FOGWIEDER

Complete ductwork system of new Humble Oil Building is . . .





## **GUARDED BY GALVANIZED STEEL**

When this handsome Humble Oil office building in Houston, Texas, is finished in 1962, it will be the tallest building west of the Mississippi River. All 44 floors will be served by galvanized steel ductwork. That's 700 tons of skin-tight zinc-coated steel—a combination of tough durability and excellent corrosion protection with the broadest economy east or west of the Mississippi River. Galvanized steel's economy starts with fabrication, continues with erection and installation and is perpetuated in what little maintenance is required after that.

WEIRKOTE® IN PARTICULAR!—That's the choice of Mr. Harold W. Looney, owner of Looney's of Texas, Inc., sheet metal contractor, for all 700 tons of ductwork in this new building. To the inherent strength of steel—to its economy, versatility and advantageously low expansion/contraction rate—Weirkote adds flawless fabrication and long-lasting corrosion protection. Chip-free, crack-free, peel-free Weirkote is manufactured by two National Steel divisions, Weirton Steel and Midwest Steel. Write Weirton Steel Company, Weirton, West Virginia, for further details.



MIDWEST STEEL Portage, Indiana WEIRTON STEEL
Weirton, West Virginia



divisions of

NATIONAL STEEL CORPORATION

Circle No. 365 on Reader Service Card.

### MPM

#### newsquotes

The salesman who bides his time today waiting dreamily for glamorous products of the future is missing profit and sales now, for today is the future of 1950, 1955, and even 1959. — J. J. Anderson, Westinghouse.

An appliance just can't be too reliable to satisfy a customer; while a satisfied customer may not come early for a replacement, he or she will praise your wares over the back fence, and will come again for your proven equipment when ready.—Everett F. Cox, Whirlpool.

The answer to any competitor, be he a foreign or domestic steelmaker or the producer of a substitute material, lies, first of all, in developing and keeping a competitive position. — Roger M. Blough, United States Steel.

You have heard the motto, "one test is worth a thousand expert opinions." Where component reliability is concerned, I submit that one good field failure analysis is worth a thousand laboratory tests.—R. L. Heckman, General Electric.

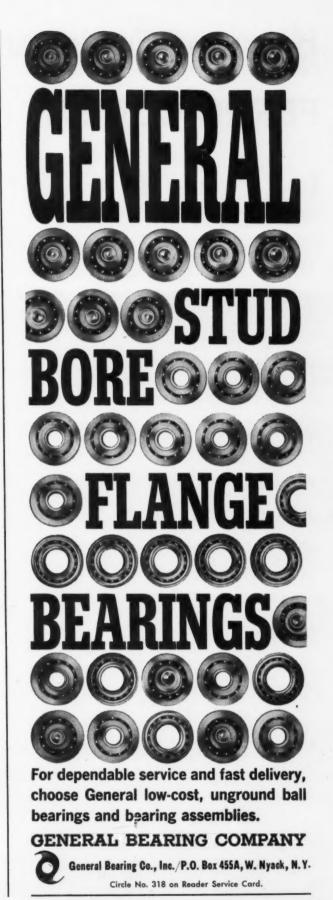
In our industry [appliances] the technological progress has been unparalleled in the world. The same strides in marketing would make this one of the healthiest industries in the world. — J. W. Craig, Westinghouse.

Washing machine manufacturers will continue to export about two percent on annual sales, and about five percent of refrigerator sales will be for export. While there is a great potential in production for foreign consumption, it is not all a bed of roses. We have to overcome barriers of language, traditions, etc.—J. M. Skinner, Philco.

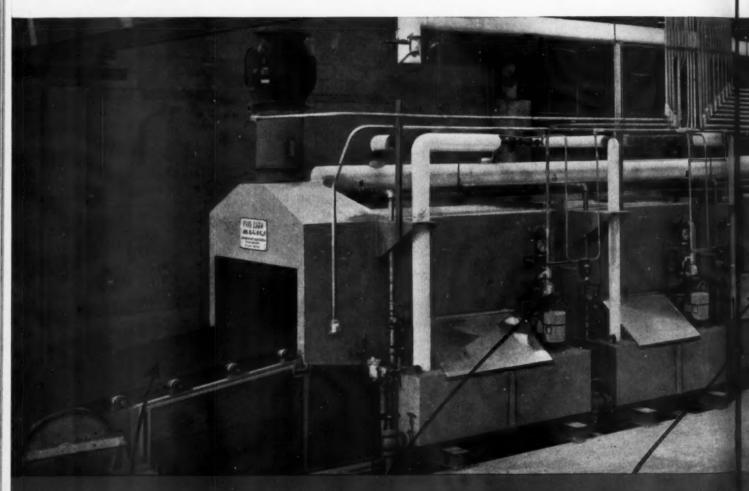
The appliance industry has worked off heavy inventories and is poised for an upturn in business spurred in part by increased residential building. — T. F. Patton, Republic Steel.

Today 68 percent of all [industrial] equipment used is more than ten years old. At the end of World War II this figure was 38 percent. This growing obsolescence gap on our industrial front may well be a greater danger than the space gap. The age of our industrial plant is approaching what it was in 1940 at the end of the great depression, when 72 percent of the equipment in use was more than ten years old.—Robert Sheridan, Nationwide Leasing Co.

The customers are asking for quality, while the manufacturers are offering them price. — H. Leslie Hoffman, Hoffman Electronics, Inc.



# How an "Engineered-to-the-job" FERRO-CURRAN machine cuts costs for American-Standard



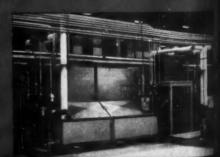
MESH BELT CONVEYOR eliminates need for costly were fixtures. Is easily adapted to sustematic to ding of year.



AUTOMATIC CONTROLS regulate temperature of sprayed solutions. Vertical pumps require no packing, provide leak-free operation



SIDE TANKS permit easy access to solution heating coils, simplify the adding of manufacture when and as needed.



Cleaning and pickling of steel bathtubs prior to porcelain enameling are handled in one continuous, automatic, completely enclosed process at the Richmond, California plant of American-Standard.

A Ferro-Curran Pickling Machine, with a capacity of 40 bathtubs an hour, was especially designed for the purpose. Mesh belt conveyors carry the ware through a 5-stage cleaning and pickling process controlled by a single operator. Labor and material and space costs are greatly reduced. Fumes are automatically exhausted. Quality of the pickling is consistently maintained, resulting in better finished products.

The installation is 110 feet long, occupies but 900

square feet of floor space. Jet-spray cleaning and pickling assure fast, uniform results. Recirculating pumps and nickel filter save costly materials. All equipment is built for long service, is easily accessible, will require minimum maintenance.

Write for complete details—of equipment, operation, cost savings. Also, how such a system could *pay off* in *your* operations.

# FERRO CORPORATION Engineering Division 4150 East 56th Street, Cleveland 5, Ohio

# GE range panels direct-on enameled with new Bethnamel sheets

# 85-90 pct acceptability on first fire . Boiling, fish scaling no problem

At its huge Range Division, Appliance Park, Louisville, Kentucky, General Electric is now using Bethnamel enameling steel in direct-on enameling of exposed front panels for 30-inch ranges.

#### DIRECT-ON PROVES SUPERIOR, LESS COSTLY

In producing 400 of these panels per day, General Electric has found commercial-quality, 22-ga Bethnamel sheets entirely satisfactory for the draw involved. Of vastly greater importance, GE has concluded that direct-coated Bethnamel is giving superior results, and substantially cutting costs.

They use the same titania-opacified enamel on the Bethnamel sheets that they use as a cover coat in their two-coat process. As one engineer says, "This enables us to change from two-coat to one-coat operation without missing a hanger on the spray-booth conveyor!"

#### NO BOILING, FISHSCALING; ADHERENCE SUPERB

Using the PEI standard adherence test impressions, GE has found no loss of enamel in the test area of single-coated Bethnamel. Surface abrasion and acid resistance of the cover coat have proved to be unaffected by the absence of a ground coat. Boiling and fishscaling have not even entered the picture. Bethnamel parts have rung up a record of 85-90 pct acceptability on first fire; and those parts which need reworking are easier to rework because no ground-coat patch is necessary.

#### BETHNAMEL COSTS NO MORE

All these and other Bethnamel advantages can be yours, at a cost no higher than that of ordinary enameling iron. For further details, write to the address below, Room 1041, and ask for Folder 734.

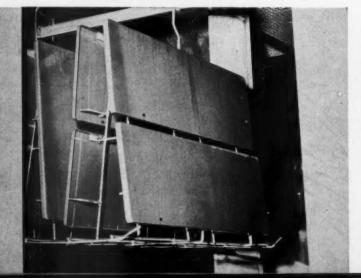


BETHLEHEM STEEL COMPANY, BETHLEHEM, PA. Export Spies: Bethlehem Steel Export Corporation

# BETHLEHEM STEEL

Front panels passing through pickle line. For direct-on enameling GE made simple modifications in pre-treatment. Here a ferric nitrate solution is the pickling agent, followed by a nickel strike (Ni range: 0.05-0.15 gr per sq ft).

General Electric uses the same titania-opacified frit in their direct-on enameling as in the two-coat operation. Because of Bethnamel's negligible carbon content, boiling and fishscaling have been no problem.







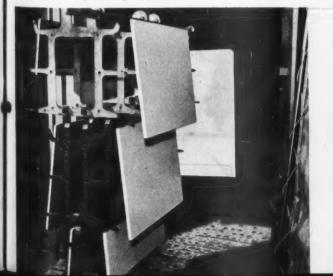
Louisville, Kentucky, where Bethnamel panels are mounted on 30-inch ranges.



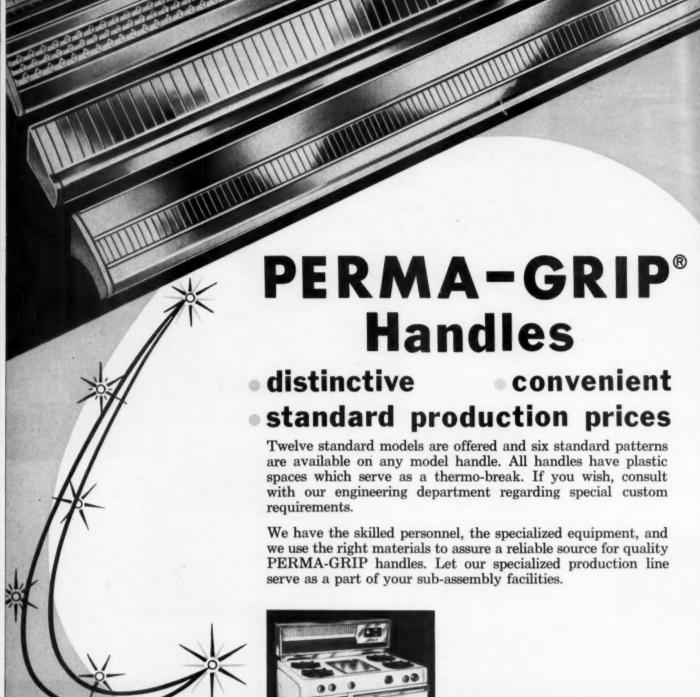
Note the well-nigh perfect adhesion on this actual-size view of test panel made at GE's Appliance Park Range Division plant. Standard Porcelain Enamel Institute test was used.

Direct-on Bethnamel panels are fired at 1450 deg F, for 4 minutes. At this temperature Bethnamel has consistently exhibited superior sag resistance.

Assembling and inspecting finished door panels. Acceptance of direct-on Bethnamel parts runs at an average rate of 85-90 pct on first fire.







This range produced by Eagle Range & Mfg. Co. is attractively designed to incorporate the use of Perma-Grip handles.

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W. H. Dennler, general manager of the General Electric Co.'s Major Appliance Division, presented the opening address.

# Appliance engineers hear reports, opinions and new ideas

Domestic and Commercial Applications Committee of AIEE sponsor 12th Annual National Appliance Technical Conference

MPM PHOTOS

AN MPM STAFF REPORT

CHURCHILL Downs was the focal point of Louisville the first week in May, but electrical engineers in town the first three days of the week stuck close to the Kentucky Hotel, scene of the 12th annual National Appliance Technical Conference

The conference, held in conjunction with the 6th annual Conference on Rural Electrification, was sponsored by the Domestic and Commercial Applications Committee of the American Institute of Electrical Engineers.

Fifteen papers were presented at the appliance portion of the conference. Topics covered a broad range of material, including research studies, design recommendations and new developments in the appliance industry.

In an opening address, W. H. Dennler, general manager, Major Appliance Div., General Electric, challenged the engineers to "help load the lines" of electric power companies, whose capacity has doubled every 10 years.

To get a greater share of the consumer dollar, he said, the appliance industry must find out what the consumer wants and design the products with these wants in mind. He stressed the desirability of upgrading quality, improving service and reducing cost.

#### Component reliability

Reflecting the industry's increased awareness of the need for reliability, one of the most important papers presented discussed "Component Reliability — Goals, Problems and Progress." R. L. Heckman, manager of product planning at GE's Appliance Control Dept., explored the subject, which is closely related to the two-part article on standardization he recently wrote for MPM (April and May issues).

Heckman voiced the need for "reliability goals" for components. These goals should be statistical in nature, he said, and should equal a life expectancy greater than the appliance itself. One of the factors which discourage high reliability, Heckman pointed out, is frequent redesign of components: "... the longer a device is built, the better the reliability."

He also pointed out that cost-wise, service is the largest single item in a part that is redesigned frequently, and

Panel at first domestic appliance session included (from left) R. E. Sand, Hotpoint, session chairman; D. C. Krammes, Hoover Co.; C. R. Ruffing and G. B. Helmen, Westinghouse; A. F. Boice, GE; and R. A. DeGrand, Westinghouse. M. A. Oliver, AMP, Inc., is not pictured.





Second session featured discussions by (front, from left) A. L. Martin, Whirlpool; E. C. Ballard and R. D. Mulry, Metals & Controls, Inc.; C. F. Ziegler, W. M. Chace Co.; (back row) R. L. Heckman, GE; and M. A. Fuller, Whirlpool, session chairman. R. Glasgow, GE, is not pictured.

that these costs overshadow savings in materials and labor realized by redesign.

Other factors important to meeting acceptable reliability levels, as spelled out by Heckman, include "total" quality control programs, proper use of field failure information, and complete cooperation between component manufacturers and end-product manufacturers.

#### **Double insulation**

Double insulation of portable appliances, widely practised in foreign countries, has been arousing considerable interest in the United States recently. Thus, D. C. Krammes' paper on this topic was particularly timely.

Krammes, project engineer of The Hoover Co., explained his firm's work with the technique and discussed its basic principles.

He defined double insulation as follows: "It provides two insulation barriers between current-carrying parts and exposed metal parts of an appliance. These two barriers are designed as primary (functional) and secondary (protecting) insulation, respectively."

Pointing out the advantages of double insulation, he said that the application of double insulation is particularly advantageous when considered as an alternative to single insulation combined with grounding of exposed metal. "Double insulation, if applied intelligently, can provide 'built-in' safety which does not depend upon the questionable reliability of a grounded circuit," Krammes stated.

#### Moisture and water resistance

A paper prepared by G. B. Helmen and C. R. Ruffing, Westinghouse, described the pair's work on improving the moisture and salt-water resistance of room air conditioner fan stators. Stators were vacuum impregnated with epoxy composition and subjected to high temperature and humidity. According to the paper, the epoxy impregnation produced

significant improvement in electrical properties and drastically reduced stator electrical failures in locations with high humidity, salt and mineral content in the atmosphere.

#### Factory data gathering

Special electrical equipment utilized for data processing in the range department of General Electric was discussed by Ralph Glasgow, advance planner. Shop data automatically gathered from the factory is put into cards and fed into a Univac nightly. Reports produced include payroll, factory efficiency, planning and in-process inventory, many of which are available the next morning.

According to the author, "The electromechanical equipment provides savings in direct and indirect labor, spoilage, inprocess inventory, obsolescence, and also provides information for preventive maintenance and tool maintenance programs as well as numerous intangible benefits."

Basically, the control system consists

of control boxes located on factory machines from which data is to be gathered. Actuations of the machines are transmitted directly from the machines to panels in the control room by using limit switches, relays, electric eyes, proximity switches or pneumatic switches.

#### Noise control lab

The development and operation of a "quiet room" to conduct an appliance noise program was detailed in a paper by J. L. Martin and A. F. Martz, Whirlpool engineers.

One of the novel features of the room was a method of supporting the inner or "dead" room so it would be isolated from the foundation. The engineers decided upon the use of a series of air bellows, which were placed under the frame of the floor around the periphery and inflated to provide a natural frequency for the room of about 4 cps. The air pressure in the bellows was also adjusted so that the deflection at each point of support was the same.

This construction, the authors pointed out, allows the use of a very soft mount when an extremely quiet appliance is under test, and a stiff mount when an appliance with severe vibration characteristics was being tested.

The sound laboratory is used to make both acoustical and vibration measurements. In addition to carrying out noise reduction programs, the facility has also been used to find the total acoustical power output of certain appliances and in experimental studies on research projects. "Its importance to the company has grown steadily with the increased emphasis on noise reduction," the authors noted.\_\_\_\_\_MPM

Panel at final session included (front row, from left) T. I. Syfert, Ranco, Inc.; J. A. Pietsch, General Electric; R. B. Wheaton, Whirlpool Corp.; J. L. Liebermann, Ranco, session chairman; (back row) J. L. Colton and C. H. Witsken, Welcraft Products. L. Loeb, GE, is not pictured.





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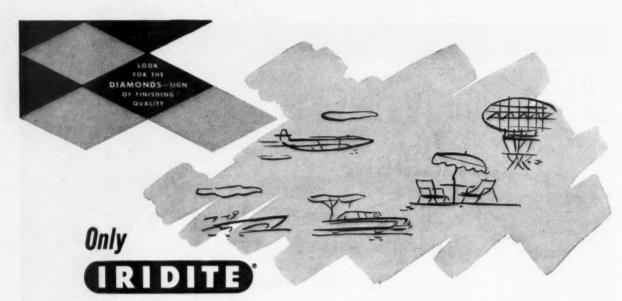
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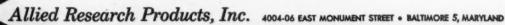
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#### top men of the major appliance manufacturing industry meet at Boca Raton, Florida

W. G. Hamilton, Jr., pres-GAMA ident of the American ident of the American Meter Co., Philadelphia, was elected president of the Gas Appliance Manufacturers Association. Others elected were: J. F. Ray, vice president in charge of sales for General Controls Co., Glendale, Calif., first vice president; Joseph J. Decker, president of the Plumbing and Heating Division of American Radiator and Standard Sanitary Corp., New York, second vice president; and Robert C. Le-May, manager of contract sales for the Selas Corp. of America, Dresher, Pa., treasurer.

In his final remarks, outgoing president Wendell C. Davis said that 1960 was "a good year to have behind us."

He went on to say that he felt 1960 had shown a very competitive electric industry and he feels that the competition will continue to increase. He believes the most important new phases of electrical competition are: Electric heating, the all electric home, and the fact that at least one manufacturer has announced an electric range with a top burner faster than gas. Davis feels that present indications point to a singly-fueled home, and the fuel that heats the home will handle all appliances.

He also expressed his opinion that the AGA, gas industry sponsored advertising and promotional programs are not enough. He feels that the gas appliance and equipment companies must do a national promotional job at the same time.

L. T. Potter, president of AGA and the Lone Star Gas Co., urged that the gas appliance manufacturers take advantage the knowledge available, through feedback, from home service directors and servicemen. He believes both of these groups could convey to manufacturers what the consumers desire.

Hamilton outlined three objectives for the year ahead: 1. He urged that manufacturers take a good look at their profit picture. 2. Gas industry advertising should be analyzed to see if it is doing the job. 3. Gas appliance and equipment companies own advertising and promotion should be bigger and better - and should be comparable to the AGA program.



(Left) - Seated at speakers' table are (from left): William G. Hamilton, Jr., president of American Meter Co., Philadelphia, newly elected president of GAMA; E. A. Norman, president, Norman Products Co., chairman of the nominating committee and past president of GAMA; Harold Massey, managing director, and Thomas Nichol, Jr., legal counsel, GAMA.



(Above) - Other speakers include (from left): James R. Allen, Johns-Manville Sales Corp., chairman of Gas Vent & Chimney Div.; J. F. Ray, vice president, sales, General Controls Co. and 1st vice president of GAMA; Dr. John Forbay, TWA, guest speaker; and Wendell C. Davis, president, Steelcase, Inc., retiring president of GAMA.

MPM PHOTOS

(Right) - Retiring President Davis receives citation and gavel from President-Elect Hamilton.



Under the shadow of AHLMA recent developments, Guenther Baumgart pointed out in his president's report that AHLMA has never been involved in any anti-trust activities. He said that all AHLMA activities are reviewed by the association's legal counsel, who attends all meetings, reviews minutes and checks all other details.

Claire G. Ely, vice president, marketing, The Maytag Co., chairman of the board, AHLMA, kicked off the convention's "Resurvey of the Sixties." Looking back to last year's convention, the industry expected a sale of over 5 million units. The industry, as we know, fell far short of this.

The market potential is present, but the home laundry appliance industry's only guarantee to share in the currently predicted upswing is through hard work

and creative salesmanship.

In what he called a "long-term cycle in the spending of the consumer dollar, Ely said the point is being approached "where we will again see an upswing in

percentage of the consumer dollar spent for home laundry equipment." After World War II and through most of the 1950's, the consumer satisfied pentup demands for household appliances which were unavailable during the war years. Once these demands were met he began to spend his money for other things outboard motors, boats, swimming pools, travel, etc. "This pattern of spending, he said, "may delay but will not inhibit the demand for our products," since the the facts are indisputable:

# SPEED CONTING DOES A SELL RAT BES!!!

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Industry reaction was immediate: wattages climbed in an attempt to meet the challenge of PROCTOR. Even with the highest possible wattages, PROCTOR's Instant Heat is still unmatched!

Yes, even today, eleven years later, PROCTOR still leads, with the Instant Heat Control . . . the only <u>practical</u> way of giving the housewife what she wants . . . fast, dependable cooking!

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#### YET THERE IS MORE

Heating is uniform over the entire element . . . input is automatically compensated for ambient temperature variations and voltage changes . . . pilot light circuits are included . . . installations are easier . . . mounting is simple and adaptable to all range designs.

Make your range appeal indisputable ... add a Proctor Instant Heat Control.



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Controls Division 4000 Coolidge Avenue Baltimore 29, Md.

PROCTOR

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# Non-restrictive standards can help the manufacturer and the field serviceman

BY Fred & Weldon . VICE PRESIDENT, GENERAL CONTROLS CO.

PRODUCTS IN THE COMPONENTS FIELD lend themselves to standardization in widely varying degrees. For example, there is a tendency to consider the gas cock as a piece of "hardware" and, providing the valve works satisfactorily and the gas flow is correct, a unit can normally be used in place of any other competitive product. In the more sophisticated products, however, such as a clock thermostat, the present degree of standardization is limited to the voltage applied to the clock motor, the scale of the thermometer and the scale of the dial settings.

We in our company, as well as others in the controls industry, are interested in those functional and dimensional standards which serve to provide the interchangeability without necessarily limiting the field of original design that we feel is synonymous with the progress of our industry. In general it has been our policy to adhere to those industry voluntary standards which seem to best serve the public and our customers and, of course, thereby serve ourselves.

#### Association standards

A good example of association-sponsored industry standards is represented by the heating controls industry. NEMA, for example, has published standards on fan and limit controls, thermostats, oil burner controls, and main automatic gas valves. The gas control valve standard offers an interesting example, because in the individual valve it specifies a face-to-face dimension as well as a gas capacity which will permit the dealer serviceman or mechanic to change over in the field any standard valve to one of any other make. This can be done readily without running into any technical difficulties in the proper application of the product.

Specifications which permit interchangeability in the field also permit the manufacturer this complete interchangeability in the plant

Some of the other standards are not complete enough to gain this same end result as they do not have the blessing of the approval agencies for such interchangeability. Examples include the fan and limit controls. From the point of view of uniformity of dial markings, terminology, and general appearance in the fan and limit control field, however, the standard does serve a purpose.

#### Standards by "common usage"

In addition to the published standards, there are other standards in the heating controls industry that have grown up over the years through common usage. One of the most beneficial, we believe, is the practice of the manufacturers of thermocouple safety pilots to standardize on a single thread design for the termination of their thermocouples, so that they are interchangeable with the thermomagnets of all other manufacturers. Similarly, the manufacturers of thermomagnets

nets have generally adhered to an established drop-out point so that these, too, become freely interchangeable where necessary in the field without sacrifice of safety.

In the field of oil heating, standardization can be helpful in connection with thermostat performance. For example, if oil burner relays of different current ratings should be interchanged, a problem can develop. For this reason, most of the oil burner control manufacturers attempt to set the relay current draw at .4 amp so that uniform performance of thermostats can be assured, regardless of the make of the oil burner control used. This, of course, simplifies both the manufacturer's and wholesaler's inventory problems and minimizes the possibilities of errors which might result in public disfavor for the product.

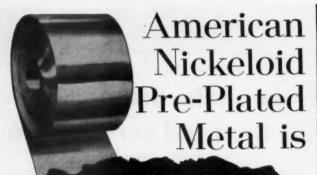
In another area of the controls industry, there are NEMA standards to cover such things as temperature controls and pressure controls. In addition to published NEMA standards on these devices, there is general industry usage on expansion valves to adhere to tonnage ratings and methods of rating as established through the American Society of Heating and Air Conditioning Engineers. This serves the purpose of affording the manufacturer and the field servicemen definite yardsticks with which to work.

At the present time, manufacturers of gas water heaters have the opportunity for direct interchangeability between thermostats as manufactured by three of the major control companies in the appliance industry. These units are dimensionally interchangeable, and by capacity they are close enough so that field interchangeability and manufacturer selection remain flexible. In this instance there is no published standard but, through common usage over the years, a degree of standardization has developed which has meant considerable saving and improved service to the industry.

#### Three benefits from standardization

Among the advantages to be derived from this type of standardization, as we see them in our business, are the following:

- 1. Field interchangeability permits the serviceman to follow his problems with one of several manufacturers' products depending on their local availability. This improves the public acceptance of the control as well as the appliance and simplifies the training problem of the serviceman.
- 2. Original equipment manufacturers can use two or more sources for their components without a burdensome cost in switching from one to another in production.
- 3. Because the standards are not restrictive, new development can take place to maintain competition and hence, better serve the industry.



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# Standardization can increase reliability

In Starting the series on Standardization, we took a positive attitude, knowing full well that we might expect to hear murmurs of "foolish" — "it can't be done" — along with references to "stifling research," etc.

We prefer the positive approach, and the response to our first articles on this subject indicates a similar feeling among engineers and top management men.

Those who read the first features in our series know that the intent is to encourage standardization for increased quality and reliability—and to lower costs when lower costs can be obtained without sacrifice of quality and reliability.

We will repeat our statement of policy: It is not the intention of this series to stifle creativity in product design or discourage logical model changes which offer the consumer added use value.

#### A case in point

Over a decade ago, this publication inaugurated an editorial series on safe shipping and preshipment testing of finished products. This was attacking a problem that had been with all industry for innumerable years. It appeared to be insurmountable.

Nevertheless, today there is a National Safe Transit Committee in Washington, D. C. whose STANDARDIZED preshipment testing program is in use throughout the appliance industry and is included in representative government and defense specifications. It is credited with saving thousands of dollars for each of many end product manufacturers.

Credit for the testing program goes to top management and engineering executives in many of our appliance manufacturing plants and to a recognized association for coordinating the combined efforts of carriers and shippers to reach the desired goal.

This publication has kept the Safe Transit story before its readers monthly for over a decade, and our editors have had the pleasure of seeing their work flower into a practical and recognized program of benefit to all manufacturers who choose to take advantage of the standard tests.

#### Standardization for reliability

It is our belief that lack of standardization (as in the case of lack of preshipment testing) is costing the industry millions of dollars, at least some of which could be saved through increased attention to standardization. At the same time manufacturers can improve the overall reliability of end products.

Unlike the Safe Transit program, we are not suggesting a committee or new organization. Leading associations have engineering committees fully capable of promoting a standardization program, and there are existing agencies for the verification and recognition of any programs of national importance.

Our current objective is to get increased recognition by top management of the possibilities which many engineers see in standardization, whether it pertains to a material, a small part, a complicated component, or a complete appliance.

We shall continue our campaign on the subject of standardization for reliability through the publication of opinions from leaders in supplier and OEM companies and by the presentation of case histories.

We welcome suggestion and comment (pro or con) from MPM readers. — The Editors.



(From left) — William H. Dennler, general manager, Major Appliance Div., General Electric Co.; Fred Holt, general manager, Home Laundry Dept.., General Electric Co., vice chairman of AHLMA; Claire J. Ely, vice president, marketing, The Maytag Co., chairman of AHLMA; and Robert E. Brooker, president, Whirlpool Corp.



(From left) — Homer L. Travis, vice president, Kelvinator sales, American Motors Corp.; Mort Farr, owner, Mort Farr, Inc., chairman of the board of NARDA; Guenther Baumgart, president, AHLMA; John W. Craig, vice president and general manager, Major Appliance Div., Westinghouse Electric Corp.; and James M. Skinner, Jr., president, Philco Corp.

мрм РНОТО



(From left) — Dr. Franklin H. Wells, director of research, AMP, Inc.; Dr. Everett F. Cox, manager of research, Whirlpool Corp.; Dr. Friederich W. Schwarz, general manager, Electron Div., Controls Co. of America; and George A. Henderson, principal reliability engineer, technical and research staff, The Martin Co.

#### GAMA-AHLMA-NEMA

-> FROM PAGE 33

consumer eventually will consider replacing his home laundry appliances with more up-to-date and better models.

Dryer sales, which showed the smallest decline last year, pose a different situation in view of the relatively-low saturation of dryers in this country — 20 percent. But the need for effective sales techniques, Ely said, also is apparent here since "although the typical American homemaker may classify a washer a necessity, she still is not classing a dryer as a necessity." Coin-operated laundries, Ely went on, have helped people realize the effectiveness and convenience of automatic drying.

tomatic drying.

Ely said "the rather disappointing level" of combination sales the past few years may indicate the industry is ahead of the public in this concept, or that dealers are lagging behind public interest, or both. In his opinion, consumers are interested in combinations, "but before it is possible to obtain mass sales, appliance dealers must endorse the combination enthusiastically . . . and must convince the consumer of the additional benefits provided by a combination."

Robert E. Brooker, president, Whirlpool Corp., urged profit planning for the home laundry industry. He stated that probable sales volume for the next five years will be approximately the same as that for the last five years. It should be possible to maintain a very healthy industry on this projected volume if manufacturers plan carefully.

He pointed out that, now that the industry has matured, it becomes more difficult to get cost reductions out of manufacturing. Price alone does not lead to improved market penetration. Sales increases predicated on lower prices will have a short life and only result in reducing profit.

W. H. Dennler, general manager, Major Appliance Div., General Electric Co., said that he feels the home laundry industry has failed, so far, to provide the consumer with what she wants. He suggested that the industry step up programs to sell service contracts. He believes that, if properly handled, service contracts can be used as an advantage from the standpoint of sales.

John W. Craig, vice president and general manager, Major Appliance Div., Westinghouse Electric Corp., stated "we must prepare — condition our industry, get ready, correct the mistakes of the past, improve our technology, our product and our markets." He asked, "What do we really know about this appliance business, about its markets and about our customers?" He pointed out that major business decisions are based on market research — "yet our market research contains error, serious error." Many comparable research studies are highly confusing. Three different organizations in 1959 showed 700,000 differ-



(From left) — Fred Holt, general manager, Home Laundry Dept., General Electric Co., vice chairman, AHLMA; D. M. Strathearn, associates committee chairman, AHLMA, and vice president and general manager, Appliance and Automotive Div., Controls Co. of, America; Guenther Baumgart, president, AHLMA; and Claire G. Ely, vice president, marketing, The Maytag Co., chairman of AHLMA.

ence in production of washing machines in their forecast. Automatic washer sales saturation figures varied from 39 to 44 percent. He went on to ask, "Is there really a national market or is there a grouping of individual markets? Is the success in a market dependent on the quality of the distributor and dealer? What do we really know about the marketing end of our business, including forecasting, advertising, etc?"

Craig said, "It is an almost unbelievable paradox that in our industry our technological progress has been unparalleled in the world while our marketing progress, if any, is all but immeasurable." He pointed out that since the base period 1947-49, the only major indexes to drop below that base of 100 have been major appliances. "By contrast, a \$10,000 house in 1949 today brings \$13,230. A \$2,000 car now costs \$2,780." Marketing is in such a state that we cannot get \$300 for the washer that should bring \$400. "Right now, today, is when we should concentrate on bringing our marketing technology up to date with production progress."

James M. Skinner, Jr., president, Philco Corp., covered the foreign export market. He believes that washing machine manufacturers will continue to export about two percent of annual sales and refrigerator manufacturers about five percent. He went on to say that, while there is a potential in the production of products for export to foreign countries, it is not all a bed of roses.

Mort Farr, Mort Farr, Inc., and NARDA chairman of the board, urged that the manufacturers help the dealer by putting more promotion on automatic washers rather than on wringer-type models, do something about the combo market, and push the top-of-the-line models. He also pointed out that dealers do not want destructive campaigns such

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# A new engineering service for appliance manufacturers

Owens-Corning Fiberglas opens new laboratory for solving thermal and acoustical problems

A s HOUSEWIVES DEMAND smaller but more powerful appliances with greater capacity and more conveniences, noise control and thermal efficiency probblems have become increasingly acute.

Owens-Corning, manufacturer of thermal and acoustical insulations, has recently completed a modern sound laboratory in its new Technical Center at Granville, Ohio, to offer free customer engineering service to appliance manufacturers. At the new laboratory, Fiberglas engineers conduct a variety of tests on the manufacturer's products to help improve thermal and acoustical performance, simplify assembly and reduce manufacturing costs. This complements advanced thermal testing laboratories at its Newark, Ohio plant, where many tests are conducted under precisely controlled temperature and humidity conditions.

In addition to the appliances currently being tested, the company in the near future expects to conduct acoustical testing of office equipment, residential central heating and air conditioning equipment, vacuum cleaners, high fidelity recording and amplifying systems, as well as numerous other types of small appliances and equipment in which noise is a major problem.

As many as 20 different thermal tests, as well as acoustical evaluations of home appliances, may be conducted under simulated operating conditions on appliances brought to the testing laboratories. The test sequence for a specific appliance is worked out mutually with the manufacturer's engineers.

Tests are run and data analyzed until thermal and acoustical performance has been improved as much as possible within the economical limits set by the manufacturer. Complete information is then submitted to the manufacturer in a detailed confidential report.

#### Analysis of noise patterns

The new sound laboratory contains advanced instrumentation which permits the precise analysis of any noise pattern

In this aerial view of the Owens-Corning Fiberglas new technical center, pioneering laboratories are at extreme left. Counterclockwise are the chemistry and physics research laboratories; the glass and mechanical research laboratories; the product testing laboratories; the reinforced plastics development laboratories; and sound laboratory.

which might irritate the human ear. Solutions are then developed using various insulations to eliminate the noise or modify it to make it less irritating. In many cases the manufacturer's sound engineer participates in the analysis.

A reverberation room, or "hard room," is the heart of the sound laboratory. Each of the room's walls, its ceiling, floor, and a small independent floor section, rests on a separate foundation completely isolated from the rest of the building. Each foundation is on an isolation pad which absorbs almost all outside vibrations, while a special bonding plaster produces a particularly hard wall surface.

A 16 x 8-foot vane hanging from the room's ceiling revolves at 10 rpm during tests to insure uniform distribution of sound throughout the room when an appliance is being tested.

The appliance is placed on the isolated floor section and studied under simulated operating conditions in the sealed reverberation room.

A narrow-band filter makes it possible to analyze the appliance noise output over the total audio range of the human ear on one graph and in a band width of only two cycles. Octave or one-third octave band analyzers previously used for this kind of work were not sufficiently selective to enable engineers to plot source of trouble immediately. As a re-

sult, engineers were often forced to use time-consuming and less-accurate trial and error methods to find the source and frequency of offending noises.

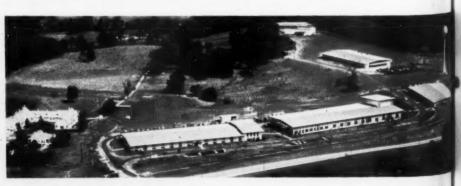
#### Noises taped for analysis

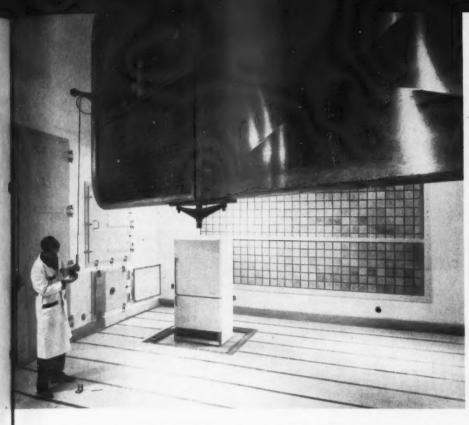
If the sound of a home washer changing its operating cycle produces an offensive noise, engineers can now make a tape recording of the specific irritating quality of the noise. This is run through the improved analyzing equipment to measure the sound power level, peak power, offending frequencies and other information necessary to make recommendations for modifying the appliance to reduce the irritating sound.

The ability of instruments to plot the entire acoustical output of an appliance on a single graph covering the complete audio range is of definite value. Less refined sound testing equipment requires several graphs to span the complete range.

At Newark, Ohio, Fiberglas has special high-temperature and cold testing rooms and a highly precise system of controlling the rooms which permit tests under temperature and humidity conditions specified by the manufacturer's engineers. A high degree of flexibility and automation permits testing and evaluation of many different appliance models in a wide range of simulated operating conditions.

EDITOR'S NOTE: Project managers for Fiberglas thermal and acoustical evaluations are the firm's technical service engineers: Eugene B. Frankenhoff, Robert L. Greenwell and Claude M. Carlisle, who work under the direction of I. Palmer Jones, manager of product development for appliance sales. Performing the tests are the acoustical engineers: Roger Johnson and Donald Huggins and the thermal engineer, Regis Jurden, who work under the direction of Foster C. Wilson, manager of product testing.





(Left) — Engineer inserts a condenser cartridge about the size of a quarter into microphone. This precision cartridge converts minute sound pressure to electrical voltage in proportion to the sound produced. The voltage is then amplified about a million times, while still retaining the exact proportion of sound pressure, and fed to recording instruments. The 8 by 16-ft vane in this reverberation room revolves at 10 rpm to insure uniform distribution of sound.



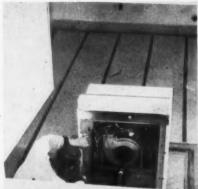
(Above)—Sound data, on tape recorded from the reverberation room, is played back and evaluated by using a narrow-band filter and other equipment shown. The signal produced by the offending noise in an appliance is fed through a logarithmic converter (center panel) which converts the signal into a graph.

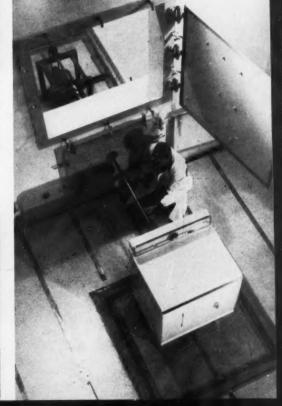




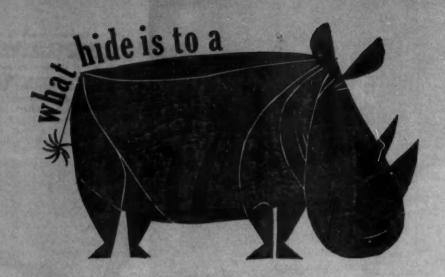
(Upper left) — The thermal efficiency of a refrigerator or freezer over an extended period of time can be determined under simulated operating conditions. The device shown automatically opens a refrigerator door 72 times each day for 30 seconds each time. A freezer door is opened 36 times a day. Normal minimum test period is ten weeks. Engineers use this test under precise heat and humidity conditions to measure the amount of ice and water accumulation in the appliance. (Upper right) — Technical service engineer marks test conditions which resulted in sweat patterns on a test model refrigerator, to indicate results of a surface condensation test. A canvas cover hides design features of a future model refrigerator in the background.

(Far right)—Drive shaft is attached to the drum of an automatic dryer in the sound laboratory reverberation room. By having the power source outside the room on an isolation pad, the acoustical engineer can define the source of an irritating sound coming from the drum without interference of noise originating from the power source. (Right) — Insulation is installed in the cabinet of an automatic dryer after its drum has been connected to power source.





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**In appliances**—Integral components of washers, dryers, refrigerators, freezers, air conditioners, all meet moisture head on—last longer, give better service, with TI-CO galvanized steel.

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(Left) - Engineer records a specific irritating sound on this loop tape. Running the loop tape through anglyzing equipment helps define the factors which make the sound unpleasant so corrective measures can be taken by the manufacturer.

(Right) - Technical service engineers adjust temperature and humidity controls for hot and cold

thermal testing chambers. (Below)—Engineer attaches a thermocouple to a range a surface temperature test in a high temperature testing chamber.

**Engineering service** FROM PAGE 41

Refrigerators and freezers are subjected to percent of running time, pulldown, surface condensation and heat leak tests, as well as the acoustical tests. In addition, appliances get simulated lifetime tests of extended duration.

Manufacturers may use these facilities to conduct a "life test" lasting ten or more weeks, in which engineers can analyze correct insulation design, air flow control, venting, sealing and proper placing of plastic-enclosed insulation in warm, humid conditions. As part of the test, an automatic device opens and closes a refrigerator door 72 times and a freezer door 36 times each day during the course of the test.

The running time test determines the percentage of running time in a 24-hour period; the pull-down test determines the lowest possible temperature attainable inside the box (the thermostat is shorted to make the refrigerator or freezer run constantly for 24 hours).

An electronic humidity sensing and control instrument permits precisely measured surface condensation tests. High temperature room facilities permit humidity testing at temperatures ranging from 70 to 100 F and humidity at from 20 to 93 percent.

A "cold room," with a range of from -20 F to 75 F is used in heat leak tests. A resistance-wound heater installed in-

side the refrigerator or freezer heats the refrigerator cabinet's interior to 95 F and freezer cabinet to 100 F. By placing the cabinet in the test room set at 50 F, engineers can measure in Btus per hour per degree the amount of heat which escapes. Constant internal temperature conditions are made possible by the resistance heater.

#### Range and water heater tests

High-temperature rooms also are used to test ranges for oven warm-up time, oven heat loss and surface temperature.

In oven warm-up tests at a room temperature of 75 F, the oven is heated to 500 F. The time it takes and the amount of gas or electric power needed is carefully measured. Heat loss tests determine how much gas or power is needed to maintain the oven temperature for four hours at 400 F. In the surface temperature measurement test, the outside cabinet temperature of the range is measured by a potentiometer-type temperature recorder when the oven is maintained at 400 F.

Water heaters are tested for heat retention by determining the time required for a tank of water to cool in a 75 F room when the power or gas is shut off. Standby loss measurements determine the amount of power or gas required to maintain water at 150 F.

With these laboratory facilities, manufacturer and designers may test prototypes for an appliance two or three years ahead of its introduction on the market. Strict security must be observed when such appliances are brought to the testing laboratory. All work is done in a restricted area and reports to the manufacturer are confidential.



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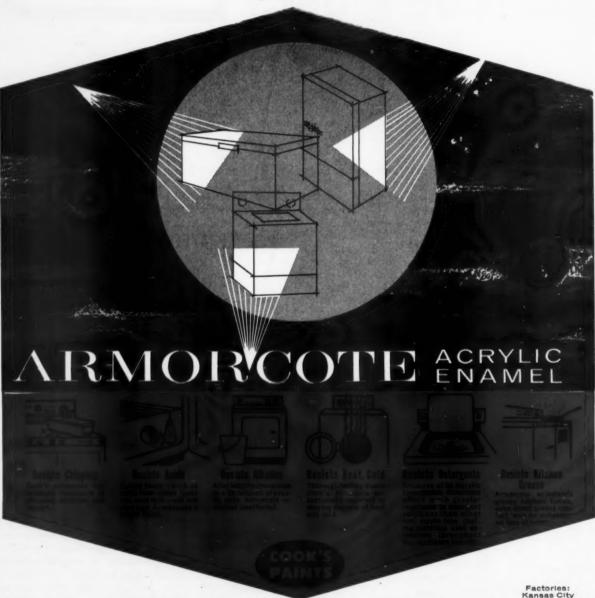
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### EBCO OF COLUMBUS: A STORY OF GROWTH

a pictorial study of plant operations at Ebco Mfg. Co., Columbus, Ohio

#### A BRIEF HISTORY

E BCO'S ROOTS REACH BACK 51 YEARS to the founding of the D. A. Ebinger Sanitary Mfg. Co. in Columbus, Ohio. This firm was an "offshoot" of the Columbus Heating and Ventilating Co. Even in those early years, its principal products were drinking fountains and other plumbing fixtures for public buildings.

With the increased development of refrigeration in the early 1930's, the Ebinger Co. pioneered a line of electrically refrigerated water coolers and subsequently manufactured water coolers for practically every trade name in the industry.

In 1935, assets of the D. A. Ebinger Co. were purchased by a group headed by A. R. Benua. He became president and has been its active head since. The new company was named Ebco. This was a trade name used by the Ebinger Co. and originally derived from the first two letters of EBinger and the first two from COmpany. Under Benua's new leadership, the firm grew steadily through concentration on the development and manufacture of electric water coolers. Shortly after the founding of the new company the Benua family purchased all outstanding stock. Since then Ebco has remained a closely held corporation.

The Oasis trade name was established for the Ebco line in 1941. But aggressive promotion of the Oasis trade name did not take place until after World War II. During the war, Ebco water coolers were produced for defense plants and shipboard use. Ebco products have been distributed under the Kelvinator trade name for more than 30 years. Within the past four years, distribution of Kelvinator products has been on a royalty basis through Kelvinator Div. of American Motors, Detroit.

The present plant was constructed east of Columbus in the early 1950's. It was designed exclusively for the production and manufacture of electrically-operated refrigeration appliances. In 1956, Factory magazine rated the Ebco plant one of the 10 outstanding plants of that year. It was "designed to expand." In 1960, first major expansion of the plant production area took place. The entire north wall was extended 125 ft, allowing for extension of production lines and more storage for crated products.

As a result of constant development and expansion of products. Ebco manufactures and markets one of the most complete lines of water coolers, Hot 'N Colds, dehumidifiers and juice dispensers. OASIS and Kelvinator products are used in business, industry, institutional and also home use.



Visitors to Ebco are received in beautifully appointed lobby.

OASIS and Kelvinator electric water coolers and Hot 'N Colds are manufactured in both "pressure" and "bottle" models in a variety of capacities and sizes. In-A-Wall and On-A-Wall water coolers also complement both trade name lines. In addition, electrically-refrigerated dehumidifiers are manufactured and marketed under both the OASIS and Kelvinator trade names. They are compact, portable and are used in homes, business establishments and industry.

The company manufactures many of the component parts used in their products. Such major parts as compressors and controls are purchased outside. Stainless steel tops are another major component that Ebco contracts out to a specialist in the die drawing field. These stainless steel tops are trimmed, beaded and polished at the Ebco plant, however.

The Ebco plant appears to be one vast production area, yet it is a combination of integrated departments, each specializing in a particular phase of production. A unique feature of the plant is its flexibility of interior design. Installations are such that assembly and production line operations may be readily altered to accommodate new models or meth-



ods. Most all of their machinery and equipment is mounted on rubber pads. At the present time Ebco lists the following production departments: steel shop; condensing unit assembly; tank and tubing assembly; paint room; plating and polishing; machine shop; toolroom; first assembly; testing; stockroom; spare parts; service and repair; juice dispenser assembly; final assembly; and shipping and receiving.

Eight years ago, Ebco pioneered and introduced a new

product to the refrigeration industry. It was called Hot 'N Cold. This product was a water cooler which had an additional function of providing hot water for making instant beverages such as coffee, tea, hot chocolate and soups. Prior to its introduction, the water cooler industry was more or less on a seasonal basis. Such new products as dehumidifiers, In-A-Walls and On-A-Walls also were responsible for putting the firm on a year-around production and marketing basis.



#### A. R. BENUA

Ebco's President, A. R. Benua, is a native of Ohio and a graduate of the University of Michigan. He has been its active head since 1935 when assets of the D. A. Ebinger Co. were purchased and the new corporation then renamed The Ebco Mfg. Co. Ebco is a closely held corporation. Benua is also president of Triumph Brass Co., a separate Columbus company, which specializes in manufacturing plumbers' brass goods.

The Ebco president is well known in the field of electrically refrigerated appliances and has been respectfully referred to as "Dean of the Dehumidifiers" (George Tauock, editor, Air Conditioning & Heating & Refrigeration News).



THE OASIS SD-32 DEHUMIDIFIER



#### L. P. BENUA

Louis Benua joined Ebco after graduatfrom The University of Michigan in 1936 with a degree in economics. He is vice president. Interested in all phases of company operation, his guiding influence is actively and equally directed towards every Ebco department. His major forte is the field of engineering.

Like many executives, he works hard and plays hard. The latter of which takes place primarily in participating sports such as skin diving, boating, hunting and skiing. Aviation is his keenest hobby. However, if is more than just a hobby. He uses it to great advantage in business as well by flying customers, executives and company personnel to trade shows and meetings





#### T. R. BENUA

Tom Benua, vice president, joined Ebco three years ago, bringing experience in chandising and personnel management. His college education at Ohio State University was interrupted during World War II. Upon returning from the service he en-tered his grandfather's retail clothing busi-ness and successfully expanded from one to three stores which bear his name in

Although most all of his time is spent on personnel matters and programs, he still finds time to supervise his clothing



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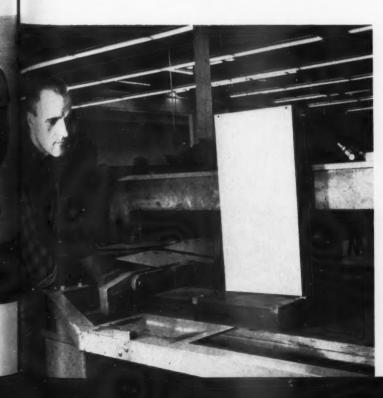




1 (Upper left) — Vinyl-clad steel is used for the Oasis cabinet. The 22-gauge material is purchased in pre-cut dimensions of 12¾ in. by 55 in. 2 (Upper right) — The flat sheet is placed in a 35-ton press brake. Notches, screw holes and recess for humidistat are formed in one operation. By purchasing in pre-cut sizes, there is little waste. 3 (Left) — The flat sheet is then taken to a press brake and edges are bent in two different operations. The first operation is to pre-form the front bezel. The second operation forms the front and flanges the rear edges. 4 (Lower left) — The piece is then taken to a double wing folder and folded to form the cabinet. This part is now complete and will be installed in final assembly. S (Lower right) — Dehumidifier bases are stamped from 12-gauge steel and a condenser retainer bracket is spot welded to the base. At another spot welder (pictured), four caster sockets are welded to the four corners of the base.

fabricating & assembling . . .

THE OASIS DEHUMIDIFIER









6 (Left) — Elsewhere in the plant, 18½-ft copper tubing is being bent into 23 serpentine bends. This is done on a modified-mandrel tube bending machine. 7 (Above) — When completed, moisture condensing coils will be folded in half and bends staggered for maximum surface exposure to moist air.



8 (Above) — Dehumidifier bases are placed in a special jig and compressor is bolted on. 9 (Above, right) —  $\lambda$  frame is then attached and the moisture condensing  $\omega$ 

11 (Below) — A charge of refrigerant gas and air is given to each unit under a pressure of 250 psi. Each unit is then



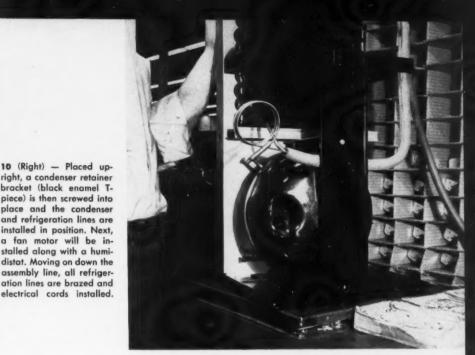


12 (Below) — The dehumidifiers must then be moved to the refrigerant gas charge area. This area is several hundred feet away. A combination system of automatic elevators and overhead roller conveyors is used to make the transfer. Units are "gravity fed" into an elevator and automatically lifted to the overhead roller conveyor. Upon reaching the top, each unit is given a boost (by motorized roller)

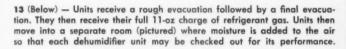
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right, a condenser retainer bracket (black enamel Tpiece) is then screwed into place and the condenser and refrigeration lines are installed in position. Next, a fan motor will be installed along with a humidistat. Moving on down the assembly line, all refrigeration lines are brazed and electrical cords installed.



installed. A special molded plastic part holds copper coils in staggered position. A plastic drain tray, designed to catch condensed moisture, is also installed at this point.

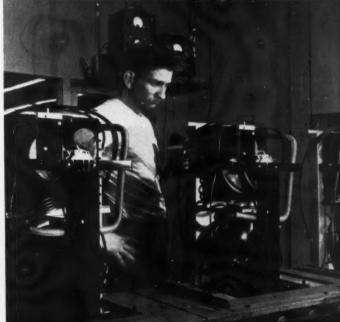


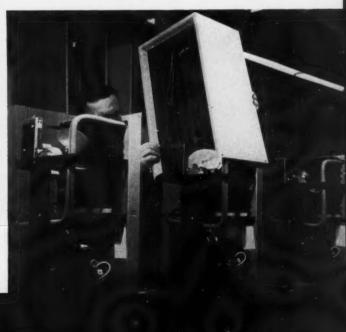
14 (Right) — Moving out of this room, they receive a final leak test. Then the dehumidifiers move into the "quiet room" for a low voltage start test.

15 (Lower right) - Moving on to final assembly, the vinyl-clad steel cabinet with gold anodized aluminum grille is put over each unit and screwed to the base. Four casters are enclosed in each carton, along with a water retainer bucket and wire bucket handle. A humidity control knob is joined to the humidistat in the recessed area on top of each unit. Warranty cards, instruction manuals, etc. are enclosed. When packaged, dehumidifiers are put on skids and stored in shipping area to be drawn upon as needed.



MPM JUNE . 1961

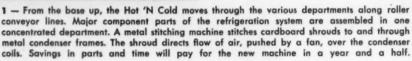








2 — Base is placed on a jig and a compressor, condenser, fan and relay are then attached.





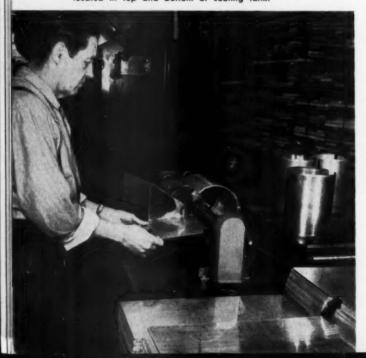
3 — Condensing unit moves down the roller conveyor line on a wooden pallet, and refrigerant lines are brazed. The unit never leaves its pallet until uncrated at place of installation.

# fabricating & assembling . . .

## THE OASIS HOT 'N COLD

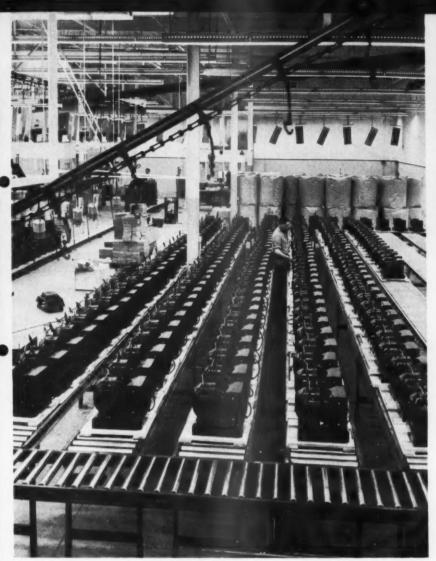
6 (Below) — Red brass cylinders are rolled and a flange is put along the edge in the same operation. Both hot and cold tanks are identical in size (5 quarts). If used for a hot tank, the flat brass stock has water inlet and outlet holes stamped in appropriate areas prior to being rolled. Inlet and outlet water holes are located in top and bottom of cooling tank. 7 (Right) — Tanks are then put into a press brake and a flange is made for the longitudinal seaming operation on a heli-arc welder.





8 (Right) — Longitudinal seam is then welded on heli-arc welder. Argon is used as shielding gas. Tanks then go to another heli-arc welder where ends are put in position and circumferential welds complete the tank formation.





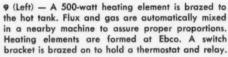


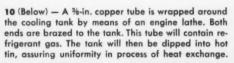
5 (Above) - In the "steel shop," red brass tank ends are stamped out for both hot and cold water tanks. Three operations are required: first, blanking out from 61/2-in.wide red brass strip; second, straightening and finish trim; and in the third operation, punching a hole in those ends to be used on the top of water cooling tank.

4 (Left) - Completed compressor units are here awaiting transfer to the assembly line area in this view.



9 (Left) — A 500-watt heating element is brazed to the hot tank. Flux and gas are automatically mixed in a nearby machine to assure proper proportions. Heating elements are formed at Ebco. A switch







11 (Below) — In first assembly, con-densing units are "drawn upon" from a large storage bank. About ten units at a time are brought into first assembly on the roller conveyor line. The 5 PR-HC cabinet backs (see Organic Finishing section) are placed in position on the condensing unit and screwed to the bases. A hot tank is put in place and fiberglas wound around the outlet tube.



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12 — Two glass fiber blocks are placed over the hot tank to insulate from cooling part of the Hot 'N Cold, and another layer of glass fiber insulation is placed over the encased tank. A cork block is then laid in position to accommodate the cooling tank. A refrigerated compartment and cooling tank is taken from a conveyor and placed inside the cabinet.



13 — Units are then moved down and around a U-shaped roller conveyor line. Workmen now join refrigeration lines. Refrigerated compartments are then put into final position. Temperature controls and solenoid valves are installed. Front cabinet panels are slid into position and screwed in place.



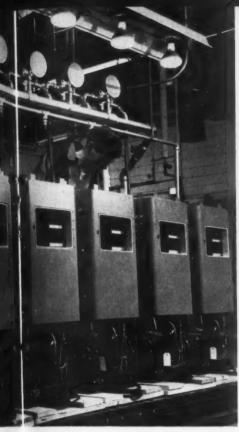
14 — Door frames are installed and five Hot 'N Cold's are taken to a test area where each will be filled with water

17 — Hot 'N Cold's move around another U-shaped conveyor line. Polished stainless steel tops are put into position and screwed down. Bubblers for both hot and cold water outlets are added, and refrigerator doors are then installed.

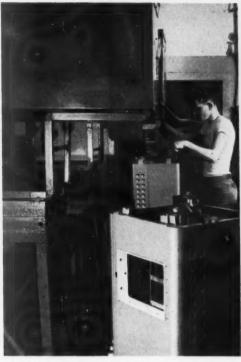


18 — Units are then moved on to an area where they are evacuated in two stages, and each unit is charged with refrigerant gas. From here they move into a larger room (pictured), where an ambient temperature of 90 degrees is maintained. Water is circulated through each unit at a controlled temperature of 82 degrees. In the case of a 5 PR-HC, water is circulated at the rate of 5 gallons per hour, and it must be cooled to 50 degree drinking water temperature. Next, the temperature control is checked to find the temperature at which it cuts on and off.





and tested under a pressure of 300 psi. Brazed refrigeration line joints are then steam cleaned to remove flux for good leak detection. An electronic leak detector is employed for the test.



15 — The units are then sent to a room where granulated cork insulation is poured around all parts of the cooling section. The granulated cork is vibrated to assure tight insulation from moisture condensation. Over the top of the cork a pre-cut cardboard separation is placed and a sealer poured over that, providing a moisture seal.



16 — In "plating and polishing," stainless steel tops are polished to a mirror finish. Extra time and effort in polishing provides better sanitary maintenance of the product.

19 — Units move out of the room into a smaller room along the line. Here, the third and final leak check is made, again employing the use of a sensitive electronic leak detector.



20 — Next is the "quiet room," which is located on a floor separate from the factory. Two walls, lined with burlap, give added assurance of soundproofing. Here, each unit is run separately to check for noise level, and each is given a high voltage test (950 volts) to prove the quality of electrical insulation.



21 — Then to final assembly where the units are made ready for shipping. Product name tags, a Hot 'N Cold emblem, instruction manuals, warranty cards and numerous other final details are put on each unit. Lower panel is added, each unit cleaned, and then packaged.



# organic finishing . . .

## THE DEHUMIDIFIER & HOT 'N COLD



1 (Left) — Finished components are transported on overhead conveyor to assembly and sub-assembly.



2 (Right) — First stage in organic finishing process is cleaning and phosphatizing operation. Each of the five stages takes approximately 40 seconds. Parts travel through the finishing department on this single overhead conveyor.

THE ORGANIC FINISHING LINE at Ebco, used for cabinets and accessory parts for beverage lockers, dehumidifiers, Hot 'N Colds and water coolers, exemplifies an intelligent application of both continuous flow processing and efficient plant layout. A 1 hr., 35 min. time lapse occurs from the time a part is put on the conveyor, moving through the organic finishing room, until it is removed from the conveyor. The conveyor moves approximately eight ft per minute.

Facilities for cleaning, phosphatizing, drying, dip painting, spraying and baking are housed in a room approximately 49 by 150 ft. The single overhead conveyor brings parts into the room, carries them through the finishing system, and delivers them to first assembly where they are routed to other departments on two other overhead conveyors.

A carefully planned layout of conveyor, dip tank, and spraying booths provide flexibility of operation to suit the organic finishing specifications for different parts. Such parts as condensers, cooling fins, water cooler and dehumidifier bases, etc. require dip painting. Water cooler, Hot 'N Cold and beverage cabinets, on the other hand, call for spray painting. Both finishes can be provided by the layout.

3 (Right) — Parts leaving cleaning and phosphatizing machine (left) enter 38-ft drying oven (exit end of oven is visible in background). Oven is heated by a dual-conversion-type gas burner which can be converted to use fuel oil in emergencies. Oven temperature is 300 F. Tank for dip painting is at right.



For dip painting, a tank is rolled into position under a vertical dip in the conveyor line. When parts are to be spray painted, the dip tank is rolled away and parts pass directly to the spray booths.

Equipment for heating the paint and controlling its viscosity assures uniform quality of finish. Paint for finish spraying is piped directly from drums to finishing booths. Flash-dry primer is supplied directly to spray guns at the primer booths. All paints are formulated by the paint manufacturer so that baking time and temperature can remain the same regardless of the type of finish applied.

Parts entering the finishing process are first conveyed through a five-stage cleaning and phosphatizing machine. Each of the five operations takes approximately 40 seconds:

- 1. Clean with commercial cleaner at 150 F.
- 2. Phosphatize with commercial preparation at 160 F.
- 3. Same as Stage 2.
- 4. Cold water rinse.

5. Final rinse with prepared solution. (Note: second and third steps are identical — to assure better phosphatizing. Hot water rinse no longer used)

Following the cleaning and phosphatizing processes, the conveyor carries

parts through a 38-ft-long drying oven. This unit employs a dual-conversion-type gas burner which can be converted to use fuel oil under emergency conditions. Temperature in the drying oven is maintained at 300 F, and conveyor speed and length are such that parts remain in the oven almost 5 min.

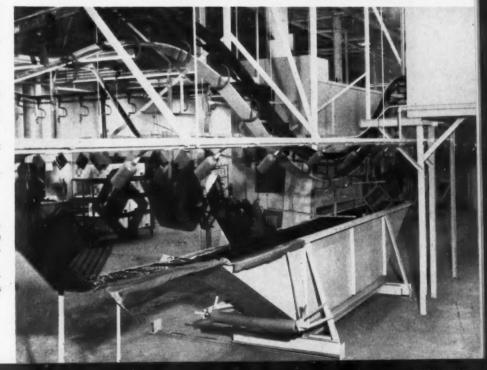
For dip painting, a tank is rolled into position under a vertical drop in the conveyor shortly after leaving the drying oven. Parts are lowered by this section of conveyor into the tank, and receive a black baking enamel coating. Batteries of carbon dioxide nozzles installed on each side of the dip tank automatically provide fire protection. Dip painted parts receive no additional processing until they enter the baking oven approximately 20 min. later.

When parts are to be sprayed, the dip

tank is rolled away from its position under the conveyor, and parts pass directly into water-wash spray booths. Conveyor speed and length between drying oven and booths are such that no less than 10 min elapse for cooling prior to spraying. A flash primer is applied in the first two booths. In the second two booths, metallic and hammer finishes are spray painted.

After a flashoff time of about 8 min, finish-sprayed parts enter the overhead baking oven. Baking temperature is kept at 340 F and takes 23 min to pass through the oven (three passes). The baking oven is adaptable to either gas or oil firing. Conversion from gas to oil may be made in 5 min. After baking, parts are conveyed to the main factory where, in most cases, they are used the same day.

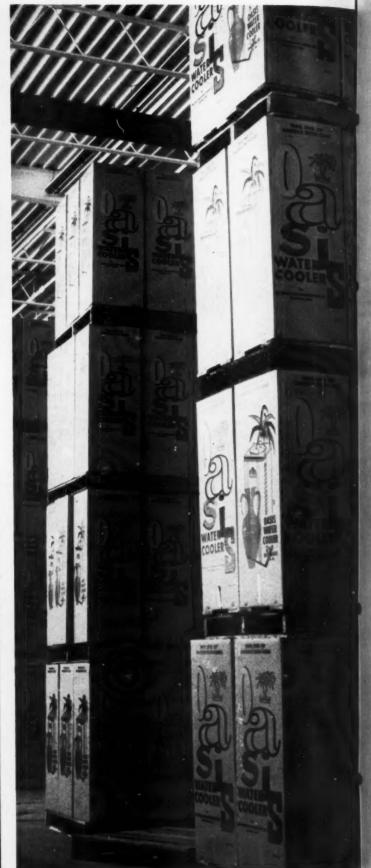
4 — For dip painting, a tank is rolled into position under a vertical drop in the conveyor. Batteries of carbon dioxide nozzles on each side of the dip tank automatically provide fire protection.



MPM JUNE . 1961



5 — When parts are to be sprayed, the dip tank is rolled away and parts are conveyed directly to water-wash spray booths. After a flashoff time of about 8 min., sprayed parts enter overhead oven where they are baked at 340 F for 23 min. The bake oven is convertable to oil firing.



6 — Moving out of the overhead oven in the finishing department, black enameled dehumidifier bases travel on overhead conveyor to point-of-use.





# Aluminum Island.

Is this tomorrow's marina? The boat company that commissioned this Olin design thinks it's very likely. After all, new design and engineering concepts and new fabricating techniques make aluminum near limitless in application. Aluminum's inherent qualities, resistance to corrosion, lightness, natural attractiveness and strength make it a "dream medium" for designers; this marina is an excellent example. It's an on-the-spot depot for fuel, food, marine supplies — and travels from place to place under its own power. And designers who work in new concepts of aluminum have the resources of Olin Aluminum at their disposal. Our technical research and product development staff live in the world of new alloys, intricate design, fabrication, and cost and production statistics. They "think aluminum." All you have to do is think "Olin." 2.



HOW TO
PORCELAIN ENAMEL
MAGNESIUM

# technical breakthrough by Dow allows application of low-temperature porcelain enamels to magnesium alloys

THE SAME LOW-TEMPERATURE porcelain enamels being used on aluminum can now be applied to magnesium alloys, thanks to the development of a surface preparation treatment for magnesium. Except for this pretreatment, the enameling procedures are the same for the two metals.

Signs, building panels, cooking ware, home appliances and engine parts operating at elevated temperatures are applications in which porcelain enameled magnesium could offer benefits. Porce-



# BY H. K. De Long . THE DOW METAL PRODUCTS CO.

lain enameling with its attractive appearance and corrosion resistance should enhance magnesium's existing advantages of lightness, stiffness, dent resistance, elevated temperature properties, machinability, etc.

The general procedure for porcelain enameling magnesium alloys is as

- 1. Grind the frit.
- 2. Prepare the magnesium surface.
  - a. alkaline clean
- b. cold-water rinse
- c. prepickle to remove surface oxides
- d. cold-water rinse
- e. Chromate treat 30 seconds to 3 minutes in 5 to 10 percent sodium bichromate plus 3 percent chromium potassium sulfate at room temperature
- f. cold and hot-water rinse
- 3. Prefire 5 minutes at 975 F to 990 F.
- 4. Apply the ground coat.
- 5. Fire 5 to 10 minutes at 975 F to 990 F depending on the type of porcelain enamel used.
- 6. Apply the cover coat.
- 7. Fire 5 to 10 minutes at 975 F to 990 F, depending on the type of porcelain enamel used.

TO PAGE 100 ->

(Above) - In a 20 percent salt spray test of 500 hours exposure, no progressive spalling on either the magnesium or aluminum panels was observed. Some corrosion undercutting on the bare edges of the magnesium panels was evident. (Right) — After 12 weeks exposure to 95 percent relative humidity at 95 F, no differences between the magnesium and aluminum panels were apparent. There was no undercutting or progressive spalling of the porcelain enamel from the bare edges.



# Timely... in-process information



When rust puts a "Stop-Order" on your production, what do you do? Where in your production line do you look for the cause? How do you find the right answer ... quickly?

1 Send for the new Magnus Rust Control Data File now - it can help you to increase your knowledge of rust . . . its cause and solution.

2 At the first sign of rust troubles, call your local Magnus Man (we'll give you his name, address and phone number). He's a specialist whose knowledge and experience in both cleaning and rust prevention can provide the answer to your rust problem.

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Circle No. 331 on Reader Service Card.

# O'Keefe & Merritt voices optimism

AN MPM DICTET INTERVIEW

During a recent visit to O'Keefe & Merritt's Los Angeles plant by an MPM editor, a onference was arranged with top executives at the company, as well as a top executive from the parent company, Tappan of Mansfield, Ohio.

Those interviewed included Don Sharp, general sales manager of Tappan, Mansfield, and the following from the O'Keefe & Merritt organization: Frank Breckenridge, vice president and general manager; George Condos, director of merchandising; R. E. Moyer, vice president of manuafcturing; and Al Cramer, general sales manager.

Here are the highlights of the taped interview:

QUESTION: Has O'Keefe & Merritt detected any trends in range sales thus far

BRECKENRIDGE: Our analysis of sales in the first few months of this year shows that the top end of our line, the 40-inch free-standing and the Model 36, are just slightly ahead of the similar period in 1960. Built-ins are holding up well. Recent reports have indicated that housing starts are on the increase, and that apartment and multiple-dwelling starts will more than offset the drop in singlefamily dwelling starts.

QUESTION: Speaking of built-in ranges, how do they stack up against free-standing models in production volume?

CRAMER: At O'Keefe & Merritt, built-ins currently account for about 60 percent of total production.

QUESTION: Apparently O'Keefe & Merritt is viewing the future with confidence. What is being done by your organization to translate this confidence into more sales?

BRECKENRIDGE: We, and that includes Tappan, are spending more time and effort on dealer training, sales promotion

MPM PHOTO

and advertising in 1961 than in previous years These things are being done with the knowledge that it is going to take more real effort in the field to keep business on the upgrade.

QUESTION: Concentrating on dealer training for a moment, what specific ideas do you have for strengthening your organization at this level?

BRECKENRIDGE: We believe that the success of sales for O'Keefe & Merritt, as well as the dealer, is closely allied with good product knowledge on the part of the retail salesman. We have the longest line of built-in and free-standing ranges in the industry, and we believe that if properly handled by the dealers, it will give them an opportunity to increase sales and improve profits. To aid dealers toward these goals, we have conducted a series of meetings throughout the country to acquaint these people with the concrete selling points of our appliances.

Participating in MPM Dictet interview were (from left) George Condos, manager of merchandising, O'Keefe & Merritt; Don Sharp, general sales manager, Tappan, Mansfield, Ohio; and R. E. Moyer, vice president of manufacturing; and Frank Breckenridge, vice president and general manager, O'Keefe & Merritt.





# A TEXTURED FINISH THAT TAKES HARD WHOCKS ... M&T SPRAY-ON VINYLS

Beauty...distinctiveness...color...you get all of these aesthetic qualities with the new vinyl finishes from M&T. But that's only half the story.

These coatings give your product an enduring coat of armor that withstands just about all the physical abuse users can give it. The finish absorbs impact without chipping, doesn't fade, refuses to stain or deteriorate despite constant handling.

You can spray M&T Vinyl Finishes on the most complex parts...and produce a rich-looking texture on smooth surfaces. Or you can reproduce the most exact detail of finely patterned metal. Or you can put a smooth protective overcoat on smooth metal.

Business machine manufacturers will find M&T spray-on vinyls very well suited to their products. Not just for decorative texture and eye-appeal, but for long-term *durability*, too. There is hardly a finish that so economically offers so much resistance to scratching, scuffing, abrasion—and the encroachment of "age."

Write for more information on what M&T Vinyl Finishes can do for your products.



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ALUMINUM CLEANER
19 JMA

# CHEMICALLY NEW APPROACH GIVES YOU A BETTER CLEANING JOB AT LOWER COST

Whether you are finishing fabricated sheet aluminum parts or die castings you'll get the chemically clean surface you need for the most effective subsequent operations when you use MACCO ALUMINUM CLEANER 19 JMA. This is not just another cleaner, but a specially developed compound that works like nothing else ever has. There are a number of reasons whywill not attack the metal . . . effective on a great variety of soils . . . eliminates streaking or water spotting . . . more economical to use . . . rinses freely, less contamination of rinse water . . . low pH, safer to use . . . works as well in tanks as in pressure washers. Your Macco man will be pleased to give you all the facts about MACCO ALUMINUM CLEANER 19 JMA. Then you be the judge!



BOATS, REFLECTORS, EXHAUST FAN HOUSINGS, ROOF SHINGLES, AIRCRAFT STRUCTURAL PARTS, APPLIANCE NAMEPLATES, VACUUM CLEANER HOUSINGS — MACCO ALUMINUM CLEANER 19 JMA will do an outstanding job on all of them, and more besides.

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The whole system is an engineered combination of the most modern ROSS components including metal preparation units, spray booths, flow coat units, dry-off ovens, air make-up units, air heaters, conveyors and air conditioning units. Now, a single responsibility for the entire system—engineered, designed, constructed and erected by J. O. Ross Engineering. For more information send for Paint Finishing Bulletin No. PF 401.

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But tough ACROPON protected it then-and will defend it from

ACROPON finish by DeSoto brings lasting beauty to any appliance. Cuts freight-handling claims to a minimum because it laughs at rough handling.

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# MPM

# industry meetings

### APPLIANCE MANUFACTURERS

The Institute of Appliance Manufacturers 29th Annual Convention-Exhibit, Netherland Hilton Hotel, Cincinnati, Ohio, June 4-6, 1961.

### **ELECTRICAL MANUFACTURERS**

National Electrical Manufacturers' Association's Western Conference, The Biltmore Hotel, Los Angeles, Calif., June 7-9, 1961.

### MALLEABLE FOUNDERS

Malleable Founders Society's Annual Meeting, The Broadmoor, Colorado Springs, Colo., June 8-9, 1961.

### APPLIED MECHANICS

The American Society of Mechanical Engineers 1961 Applied Mechanics Conference, Illinois Institute of Technology, Chicago, Ill., June 14-16, 1961.

### **ELECTRICAL ENGINEERS**

The American Institute of Electrical Engineers Summer General Meeting, Cornell University, Ithaca, N. Y., June 18-23, 1961.

### HOME FURNISHINGS

International Home Furnishings Market, The Merchandise Mart, Chicago, Ill., June 18-24, 1961

# O'Keefe & Merritt

→ FROM PAGE 62

Condos: In these meetings we stressed design features of the entire line of free-standing and built-in ranges, both gas and electric. The trend toward what you might call supermarket-style appliance merchandising requires that salesmen be thoroughly indoctrinated on the features of the product and why these features are superior.

QUESTION: Is this intensified dealer and salesman training program accompanied by any change in your national distribution setup?

SHARP: Yes. O'Keefe & Merritt is expanding its national distribution machinery by working in conjunction with the sales organization of Tappan, the parent company. This is how the system works: O & M representatives, who are generally specialists in certain areas of the country, report to the Tappan district manager in the various regions. Normally, one man does not sell products of both companies. However, representatives of both companies are under the supervision of the Tappan district manager. This system enables us to combine the broad marketing experience of Tappan with the knowledge of O & M in particular areas. TO PAGE 106 ->



# **DIVERSEY DS-9 BRIGHT DIP**

# puts lustrous finishes on stainless steel at less cost!

Every dollar you can cut from finishing costs puts your firm in a better competitive position. Diversey DS-9 not only cuts finishing costs, it improves the appearance of your products with a single immersion. On many parts DS-9 Bright Dip eliminates the need for more costly buffing, electropolishing or grinding. Puts a brilliant finish on hard-to-polish, intricate shape parts vet uses no electric current (another area where you can cut costs). For removing heat treating scale, weld scale, scale from forgings, or simply to provide superior finishing, you'll find Diversey DS-9 Bright Dip gives you the finish you need at a cost you'll appreciate. Also you can now bulk dip and save money.

Call your Diversey D-Man and ask for a trial order of DS-9 Bright Dip concentrate, available at nominal cost.

For complete literature write THE DIVERSEY CORPORATION, 212 W. Monroe St., Chicago 6, Illinois. In Canada: The Diversey Corporation (Canada) Ltd., Clarkson, Ontario



### As Mr. McCormack put it:

"My department is interested in quality. DS-9 Bright Dip delivers a better quality finish on stainless steel fittings and has substantially reduced reject rates because it completely removes scale."

# From the production line Mr. Panico reports:

"Production scheduling used to be a major headache when stainless steel forgings were cleaned outside the shop. Now we have complete production control and we have cut high-cost, in-work inventory."

# DIVERSEY.

Circle No. 315 on Reader Service Card.

# A compact gas-fired boiler

AN MPM DESIGN FEATURE

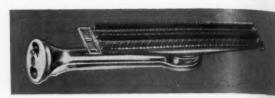
A NEW SERIES OF GAS-FIRED BOILERS recently introduced by Bastian-Morley Co., Inc., LaPorte, Ind., illustrates the trend toward "miniaturization" of this product with no sacrifice in heating capacity.

Available in Btu/hr input ratings of 70,000, 90,000 and 120,000, the largest model in the new 100 Series measures only 31 in. high, 24 in. deep, and 13 in. wide. The units are available in "flush

jacket" or "extended jacket" design, the latter having a cabinet extension of  $7\frac{1}{2}$  in. to enclose all controls at the front of the boiler.

Shipping weight of the 70,000 Btu/hr model with "flush jacket" is only 138 lba

The company also offers deluxe and standard "Packaged" models, which are ready-to-install heating systems completely assembled and wired at the factory



The porcelain enameled steel burner provides ribbon-like flame pattern with raised-port burners.

with all controls and accessories in place. Installation consists simply of gas, electrical and system piping connections.

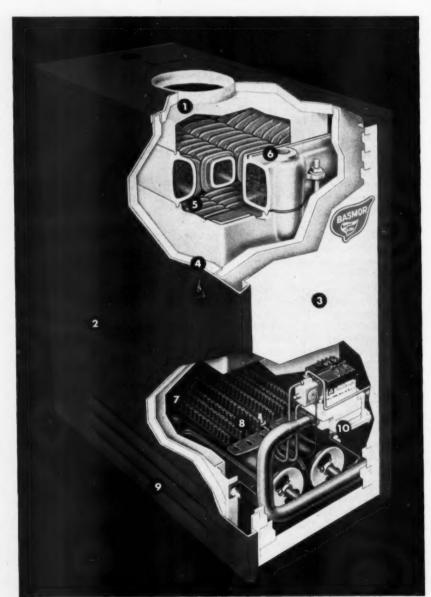
Among the features incorporated in the 100 Series are new tubular designed cast iron sections which make up the heat exchanger. Staggered fins are cast in the sides of the sections to present a maximum surface to the action of heat waves which are baffled back and forth and sideways on the heat-absorbing surface.

Also new is the one-piece, porcelain enameled steel, raised-port burners. The rows of raised 5/s-in. ports provide a ribbon-like flame pattern. Automatic aeration and freedom from backfire are said to be other advantages of the burners.

The main gas and control valve and regulator is designed for silent operation and has an automatic plug-in pilot switch for simplified servicing. A heavy steel combustion chamber has specially designed radiation shields on both sides and the bottom.

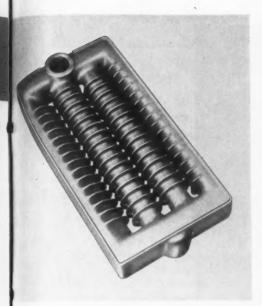
One of the features of the "Packaged" 100 Series boiler is an air cushion tank with flexible diaphragm, which permits normal expansion and contraction of the water system while preventing reabsorption of air. Also, an automatic float-type air vent continuously removes air from the water system.

Finished in turquoise and desert sand baked enamel, the boilers are said to be suitable for installation in basement, utility room, playroom, or similar locations.



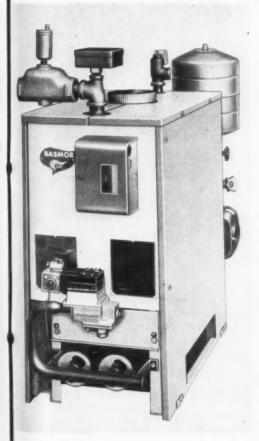
# THE 100 SERIES BOILER

- Flue collector
- Housing
- Removable panel ("extended jacket"
- Fiber glass insulation
- Staggered fins
- Tubular-design sections
- Combustion chamber
- Porcelain enameled burners
- Louvers
- Gas control and regulator valve



Staggered fins are cast in sides of new tubular-design section to present the maximum heating surface.

"Packaged" model of Basmor 100 Series is a ready-toinstall heating package assembled and wired at the factory with all controls and accessories included.





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# NEOWITE

- A third alkali & asid assistance
- Excellent resistance to steam condensate
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can offer you all these outstanding qualities in one frit at any price. NEOWITE 10 is a truly premium frit, yet it cames to you at a basic, competitive price. Try NEOWITE 70 and sea how many outstanding jobs this single, broad range felt can do in your operation. For more information and samples, write Pemce Corporation, Baltimore 24, Md.

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# **MPM**

# industry news

# Westinghouse to Expand Air Conditioning Plant

A \$2-million expansion program which will include the construction of three new additions to the company's plant at Staunton, Va. has been announced by Raymond K. Serfass, general manager of the Westinghouse air conditioning division.

A major segment of the addition will be the construction of approximately 55,000 sq ft of warehouse space. The second part of the expansion will be the addition of about 44,000 sq ft of new manufacturing area adjacent to the present main plant building. A new office building completes the expansion plans. The expansion program is expected to be finished by the middle of 1962.

# **ARI President Optimistic**

The air conditioning and refrigeration industry continues to be a bright spot in the nation's overall business picture, according to industry leaders who met recently at a conference of the board of directors of the Air-Conditioning and Refrigeration Institute,

R. K. Serfass, president of the Institute, pointed out that while gains have not been so spectacular as in some of the early years of the 50's, it has continued to show progress over a period when many other segments of the economy have suffered setbacks in varying degrees.

"We believe," Serfass said, "that the general economic softness of the past year or so is coming to an end. Our industry continued to make considerable gains even during the so-called 'recession.' I think that as the general business tone firms up, gains by air conditioning and refrigeration will show an even sharper uptrend."

# Fast-Cycle Drycleaner Proposed by Whirlpool

A new coin-operated drycleaner which will use a recently developed short-cycle cleaning solvent is being engineered by Whirlpool Corp. When available, the new machine will clean a full 8-lb load of clothes in 20 minutes or less instead of the 50 minutes required by presently available equipment.

Robert E. Brooker, Whirlpool president, and Oscar Victor, president of Vic

Mfg. Co., Minneapolis, announced that Whirlpool has entered into a licensing arrangement with Oscar and Irving Victor of Vic Mfg. that gives Whirlpool exclusive rights in certain developments designed for use with the new solvent.

The new solvent, a duPont product called "Valclene," is reported to be low in toxicity, quick cleaning, odorless and non-flammable.

# **AIEE to Meet at Cornell**

The summer general meeting of the American Institute of Electrical Engineers will be held on the campus of Cornell University, June 18-23. The occasion will be the second time Cornell has been host to such a meeting since 1935. It is expected that the meeting will be attended by 2000 engineers, industrialists, and educators from all parts of the United States and Canada.

# West Coast Gas Engineers Meet

At a recent meeting of the West Coast Chapter of the Gas Appliance Engineers Society, James O. Suffron, Douglas Aircraft Co., discussed "Air Conditioning in Aircraft."

The engineers were particularly interested to learn that, in spite of the low

outside temperature at which an airborne aircraft operates, the electronic gear in the crew's compartment generates enough heat to require continual cooling.

# IAM Names Speakers for Annual Convention-Exhibit

Better methods of accomplishing several goals will be pinpointed at the 29th annual convention-exhibit of the Institute of Appliance Manufacturers, June 4-6 at the Netherland Hilton Hotel, Cincinnati.

Among the industry leaders scheduled to speak are Claire Ely, Maytag; Sol Goldin and John Platts, Whirlpool; and Paul A. Lux, Lux Clock. Another feature will be a panel discussion on marketing research.

The formal program of the meeting is confined to June 5 & 6 (Monday and Tuesday) with Sunday reserved for a board of trustees meeting and a preview of exhibits.

# **Norge Boosts Dryer Output**

Production of automatic clothes dryers by Norge during the month of May

# First Rambler Awarded in Kelvingtor Promotion

Leroy McCraw, retail salesman for Harry Haga Co., Inc., Lynchburg, Va., was the winner of the first Rambler to be given away during Kelvinator's "Value Festival" promotion. Drawing the name from the barrel is E. B. Barnes (middle), general sales manager, with W. L. Hullsiek, merchandising manager, and W. E. Saylor, advertising and sales promotion di-

rector. Retail salesmen participate in the weekly Rambler drawing by sending a card with their name to Detroit after each Kelvinator sale. Seven Ramblers will be given away during the seven-week promotion. Another Kelvinator promotion for dealers enables them to win a Rambler by accumulating points based on sales performance.





Alan Wood is just the right size to give your order and requirements the close attention of Alan Wood's skilled steel-men... all down the line. You get the advantage of young creative thinking tempered by 135 years of solid experience. Alan Wood's fully integrated operation cuts red tape, gives you uniform quality in plate, sheet and strip... consistently... and ON TIME.

# that's your advantage at ALAN WOOD STEEL COMPANY

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DISTRICT OFFICES AND REPRESENTATIVES: Philadelphia • New York • Los Angeles • Boston • Atlanta Cincinnati • Cleveland • Detroit • Houston • Pittsburgh • Richmond • St. Paul • San Francisco • Seattle Montreal, Toronto and Vancouver, Canada: A. C. Leslie & Co., Limited



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was increased 17 percent over April. "The increase will adjust production to meet current sales levels," reported Judson S. Sayre, Norge chairman. Employment at the Effingham, Ill. plant will be increased slightly, he added.

Sayre said that no reduction in production schedules are planned for any other of the major home appliances made by the company.

# Maytag Coin-Op Products To be Sold in Europe

International Coin Laundries, Inc., and the James Armstrong Co. have been named distributors of Maytag commercial laundry appliances in West Germany and Great Britain, respectively, according to Ivan Ingersoll, Maytag's commercial laundry sales coordinator.

By the middle of this year, the company plans to have appointed distributors of its coin-operated washers and dryers to cover all the major markets of western Europe.

Ingersoll, who recently returned from a European trip, says coin-operated laundries are virtually non-existent in Europe. With a population of some 250 million, West Europe represents a much larger market potential than the United States and Canada combined.

Furthermore, Ingersoll adds, coinoperated appliances of the type used in this country are not produced in Europe. Also, many persons lack facilities for convenient home laundering.

# Ebco's Bill Taylor Named "Technical Man of the Year"

Bill Taylor, chief engineer of The Ebco Mfg. Co., has been named "technical man of the year" by the Columbus, Ohio chapter of the American Society for Heating, Refrigeration and Air Conditioning.

The fourth man to receive the award, Taylor was selected by a committee representing the 280 members of the ASHRAE Columbus chapter. He was selected on the basis of his technical and personal contributions to the industry.

# GE to Try Color TV Again

The General Electric Co. has announced it will re-enter the color television receiver market in the fall of this year. S. Martin Fassler, marketing manager of the company's Television Receiver Dept., said that a line of GE color sets were introduced to distributors late in May and will be available on the consumer market in August.

The sets in the color line will use a 21-in. picture tube. They will be manu-



THE



# Still-Man TOPP BURNER

TRADE MARK

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Institute of Appliance Manufacturers'
Convention-Exhibit
Netherland-Hilton, Cincinnati
June 4, 5 and 6



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THE EXCLUSIVE, NEW CHICAGO VITREOUS

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HE'LL SHOW YOU THE COST ADVANTAGES THAT CV 500-T OFFER YOU



# THAT'S 10 WAYS BETTER

- 1. unheard-of color stability over firing range 2. class a acid resistance
- 3. exceptionally high alkali resistance 4. incomparable re-fire stability
- 5. spot sprayability with no visible color change 6. excellent sulphate pit resistance 7. fires at low temperature 8. low stress 9. meets nema white color 10. excellent workability

Desirable for Direct-On as well as for Conventional Enameling

\*Patent Pending

FOR FINEST FRIT-CHICAGO VIT

A Division of The Eagle-Picher Company

factured at Electronics Park in Syracuse and sold through regular franchised distributors and the Sales and Distribution Dept. of the Major Appliance Div.

"GE's decision to re-enter the field at this time is based on the belief that color TV is now entering the initial phase of mass-market acceptance which eventually will put it in a major position of the TV market." Fassler said.

# Office Equipment Builders See Business Upturn in '61

Many leading executives of companies in the office equipment manufacturing industry expressed confidence in an upturn in the economic picture at the Business Equipment Exposition held recently in the New York Coliseum.

Citing their own sales results during the past few months, most felt that improvement would continue, and grow stronger, during the months ahead.

# **Eureka Reports High Sales**

The fourth biggest sales month in the 51-year history of Eureka Williams Co., Bloomington, Ill., manufacturer of vacuum cleaners and floor polisher-scrubbers, has been reported for March 1961.

March sales were 10.2 percent ahead of the like period for 1960, which was

one of the company's biggest sales months. R. C. Connell, vice president of Eureka Williams, credits the firm's March increase to dealer acceptance of the company's new 1961 vacuum cleaner line and a special silverware premium geared to the retail level.

# Keynoter Named for NEMA West Coast Conference

Chris J. Witting, vice president of Westinghouse Electric Corp., will keynote the Western Conference of the National Electrical Manufacturers Association with an address at the opening luncheon meeting, June 8, at the Biltmore Hotel, Los Angeles.

The June 8-9 conference will be the first to be held west of Chicago by the nation's largest trade organization for electrical manufacturers.

Witting, who is a member of the association's board of governors, will discuss challenges and opportunities facing the electrical manufacturing industry in the years ahead.

# Borg-Warner Sales Up

Monthly sales and earnings of Borg-Warner Corp. reached a nine-month high in March, indicating that the company has passed its low point in the current recession and can look forward to a gradual increase in business the rest of the year, according to President Robert S. Ingersoll.

Noting that improved business during March was not sufficient to offset unfavorable conditions during January and February, when the recession reached its lowest ebb, he reported that sales and earnings for the first quarter of 1961 were considerably below the comparative period in 1960. He observed that the business upturn is expected to be a "slow, steady advance from the February low point..."

# Firstunited Buys UDICO

In a recent stock purchase arrangement, Firstunited Corp., Los Angeles, gained controlling interest in udico (Union Die Casting Co.), Whittier, Calif.

B. Sherman Green, formerly UDICO's marketing vice president, was named president of the company. E. D. White, formerly executive vice president, has been appointed manufacturing vice president, and M. J. Brabo, formerly comptroller, has been named financial vice president.

UDICO began its custom die casting operation in 1925, and in 1956 developed and marketed the UDICO electric



Alliance, world's largest producer of sub-fractional HP motors, offers the widest choice of standard and custom models, faster service, more for your money. Used in leading makes of phonographs, tape recorders, appliances, business machines, animated displays and other products—all can be customized to your own specifications.

Write for complete catalog-price quotations upon request

# The Alliance Manufacturing Co., Inc., Alliance, Ohio

Weight Voltage Watts 3600 1 lb 14 Oz. Synduction 117 1.0 97 18 6.5 1.2 77 3250 4 Lbs. L 117 1 Lb. 6 Oz. H 117 1.0 .31 17 2500 12-14 1 Lb. 7 Oz. JSG 225 .49 25 117 1 Lb. 13 Oz. 2.70 .67 42 2900

> ALLIANCE MOTORS

can opener-knife sharpener. In 1960, the firm introduced an electric shoe polisher-buffer.

# Sign Convention Breaks Record

The recent 15th annual convention of the National Electric Sign Association recorded an attendance of more than 2000, an all-time high. In addition, 77 firms had exhibits at the convention. The 1962 NESA convention will be held March 25-28 at the Roosevelt Hotel, New Orleans.

# **Deco First Porcelain Enamel Clinic**

The first annual Porcelain Enamel Clinic sponsored by Deco Porcelain, Inc., was held recently at the Deco plant and Kendall's Ranch, both in Sycamore, Ill.

The purpose of the clinic, according to Deco President Walter W. Thurow, was to air and discuss new ideas, products and techniques for the porcelain enameling industry.

Along with a tour of Deco's facilities, the 84 persons who attended the clinic heard talks on six topics and participated in question-and-answer sessions. Subjects of the talks ranged from "Why Porcelain Enamel for Signs?" by Gene Howe of Chicago Vitreous Corp., to "The Use of Rigidized and Perforated Metal in Signs Today," by Leo Dubiel of Rigidized Metals Corp.

Thurow termed the first clinic "a great success" and said similar events will be held annually.

# Lead Industries Association Holds 33rd Annual Meeting

The importance of lead in a variety of industries was emphasized at the 33rd annual meeting of the Lead Industries Association in Chicago recently.

Among the topics discussed were lead zirconate-titanate and its piezoelectric properties, a flexible sound curtain incorporating strands of lead, the use of lead in automotive batteries, and the use of lead in nuclear and other specialized fields.

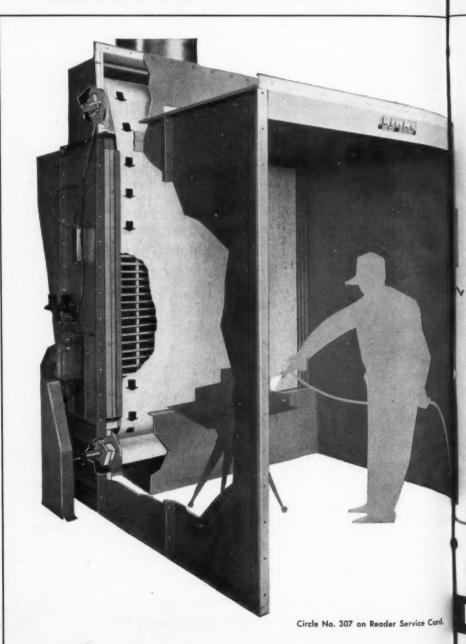
# Roehm Re-elected NAAMM Head

J. M. Roehm, vice president, research and development, Kawneer Co., was reelected president of the National Association of Architectural Metal Manufacturers for the year 1961-62 at the association's 23rd annual convention held recently in New York City.

Also, Gordon H. Smith, vice president, Albro Metal Products Corp., was elected president of the Metal Curtain Wall Div. Frank A. Austin, vice president, Crown



Deco President Walter W. Thurow explains technique of hanging parts on furnace conveyor during recent Porcelain Enamel Clinic at Deco Porcelain, Inc., Sycamore, Ill.



76

Iron Works Co., was elected vice president of the division. Richard E. Nelson, merchandise manager, Kawneer Co., was elected president of the Store Front and Entrance Div.

McKay, Federal Merge

Federal Machine and Welder Co. is to be completely merged with its parent company, The McKay Machine Co. Stockholder approval of the plan was obtained in annual meetings recently, and actual merger of the two firms needs only state approval.

Federal Machine, a subsidiary of Mc-Kay since November 1960, will be known as the Federal-Warco Div. of McKay Machine Co. In other actions McKay shareholders appointed Federal's vice president and treasurer, Ralph N. Letizell, to be a vice president of McKay, and re-elected all other present officers and directors.

PPG Announces Technique For Cutting Cleaning Costs

Pittsburgh Plate Glass Co., Chemical Div., has announced a new technological concept which is said to lower the cost of drycleaning by enabling the manufacture of machines using perchlorethylene to clean clothes faster, use less solvent and provide safer working conditions, without substantially increasing the cost

over present equipment. The concept can be applied to the design of both coinoperated and professional cleaning equipment.

According to the company, the application of vacuum drying techniques with direct contact cooling or absorption of the resulting vapors with a rapidly rotating body of cold liquid or mist, for example in certain vacuum pumps, will enable drastic reduction in drying times.

# 50 Years with Interchemical



The 50th anniversary of his employment with Interchemical Corp. was recently celebrated by Albert J. Williams of West Allenhurst, N.J. The occasion was marked by a dinner given in his honor by more than 50 of his Interchemical associates. He is shown being congratulated by K. J. Carson, Atlantic district manager.

# **Headquarters for Diversey**

The Diversey Corp. has moved its general offices, research and development laboratories, and central division sales offices to a five-story building in downtown Chicago. The building is located at 212 W. Monroe St., and was formerly occupied by the Chicago office of the Federal Bureau of Investigation. The company's former headquarters were about four miles north of the Loop.

# **White-Rodgers Acquires Signet**

White-Rodgers Co., St. Louis automatic controls manufacturer, has announced the acquisition of the assets of the Signet Controls Div., Iron Fireman Mfg. Co.

The assets purchased from Signet will be moved and integrated into White-Rodgers newly constructed plant in St. Louis.

# **Haloid Xerox Builds New Plant**

Construction of a manufacturing building and related office facility for Haloid Xerox, Inc. has been started in Webster, N. Y., a Rochester suburb. The 315,000-sq-ft structure is the largest single construction project ever under-

New Binks Dispo Spray Booth has...

# 2250 sq. ft. of disposable "filters"

# automatic curtain rolls away paint overspray

The secret of the new Binks Dispo Spray Booth is a 150yard disposable curtain which collects paint overspray...approximately 150 gallons...that's 2250 sq. ft. of filtering!

It's economical...a roll costs less than 2 cents per square foot...about 80% less than most paint filters cost.

It's safe...manufactured to meet NFPA fire standards...accepted by all major insuring companies.

It's automatic . . . when the curtain collects a pre-determined amount of overspray, a new section advances automatically.

It's simple...one man can change a roll in 5 minutes.

Ask for Bulletins A-27-14 & 15 for complete details. Your Binks Distributor has copies, or write to the address below.



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Every sheet, coil or tubing shipment of Quaker State aluminum is now certified in writing. It's your assurance that your order has passed our rigid standards of quality control to meet your exacting specifications. TESTED FOR STRENGTH AND HARDNESS. Tests for strength, hardness and percentage of elongation are made on specimens from finished rolled material. This enables QSM metallurgists to assure you that your temper specifications are met.



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A DIVISION of HOWE SOUND COMPANY

Mill Producers of Aluminum Sheet, Coil, Tubing and Extrusions

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taken by the company and the fifth new plant to be erected in the past five years by this manufacturer of reproduction and copying equipment.

The plant will be devoted to the fabrication and assembly of office copiers, offset-master making equipment, automatic printers and photo-copying machines currently made in several widely scattered buildings in Rochester.

# **Chouinard Elected AWS Head**

A. F. Chouinard, director of research and development, National Cylinder Gas Co., has been elected president of the American Welding Society at the association's recent annual meeting.

# Fairmont Aluminum Develops Stainless-Clad Aluminum

Fairmont Aluminum Co. has announced that it has successfully joined, by molecular bonding, aluminum sheet to stainless steel. The current amount of stainless-clad aluminum, the company said, is limited until production can be stepped up.

President Robert T. Farrell reported that Fairmont's present plans call for initial production of stainless-clad aluminum to go to cooking utensil manufacturers. However, he visualizes a variety of other applications for the material.

# Andrews Publishes Revised Book on Porcelain Enamel

A revised and up-dated version of his book, *Porcelain Enamels*, has been published by Dr. Andrew I. Andrews of the University of Illinois Department of Ceramic Engineering.

The 660-page volume contains 84 tables and 162 illustrations. Its scope includes the preparation, application and properties of porcelain enamels. Among the material which has been revised in the current edition to keep up with recent developments are multiple-frit ground coats, and titanium cover enamels for sheet steel, cast iron enamels, aluminum enamels, and such special compositions as those used for hot water tanks and for corrosion resistance and high-temperature applications.

Also, many of the accepted, tentative and proposed ASTM standard methods for testing have been included to lead to more uniformity in the evaluation of the properties of porcelain enamels. Research methods are described and references given for many others.

The book, priced at \$12, can be ordered from The Garrard Press, Champaign, Ill.\_\_\_\_\_MPM

# METAL PRODUCTS STATISTICS

	1961	1960 %
Gas Furnaces	(Units) 61,700	(Units) Change 61,800 - 0.2
In Man	181,300	180,700 + 0.3
Gas Boilers	8,251	9,531 - 13.4
Gas Conversion Burners March	25,514 4,900	24,607 + 3.7 8,400 - 41.7
lam Mar	16,600	23,700 - 30.0
Oil-Fired Central Heating February	31,735 73,044	34,585 - 8.2 80,698 - 9.5
Gas Ranges, Free-Standing March	121,200	144,400 - 16.1
Gas Ranges, Built-In March	318,500	391,300 - 18.6
Jan -Mar	28,000 70,000	30,400 - 7.9 76,200 - 8.1
Gas Water Heaters March	249,400	247,300 + 0.8
Gas Vented Recessed Wall  JanMar.  March	682,200 26,500	677,600 + 0.7 27,600 - 4.0
Heaters JanMar.	75,100	78,700 - 4.6
Gas Floor Furnaces	6,500 14,600	6,200 + 4.8
Gas Direct Heating Equipment. March	78,200	14,000 + 4.3 71,800 + 8.9
JanMar.	158,100	158,500 - 0.3
Gas Unit Heaters & Duct March Furnaces	13,100 38,400	14,200 - 7.7 41,100 - 6.6
Gas Incinerators March	3,800	4,100 - 7.3
JanMar.  Electric Household March Refrigerators JanMar.	11,300 300,000	11,800 - 4.2 345,000 - 13.0
Refrigerators JanMar.	764,700	925,600 - 17.3
Freezers March JanMar.	80,400	108,100 - 25.6
Electric Ranges, Free-Standing. March	206,900 81,400	253,400 - 18.2 87,500 - 7.0
JanMar.	227,400	242,800 - 6.4
Electric Ranges, Built-In March JanMar.	66,800 158,300	70,200 <b>-</b> 4.8 175,400 <b>-</b> 9.7
Electric Water Heaters March	71,800	80,300 - 10.6
JanMar.  Electric Dishwashers March	184,600	197,200 - 6.4
JanMar.	61,900 141,600	54,700 +13.2 137,200 + 3.2
Electric Food Waste Disposers. March	72,700	74,400 - 2.8
JanMar.  Dehumidifiers	179,000 49,900	187,700 - 4.6 50,900 - 2.0
JanMar.	115,100	110,700 + 4.0
Combination Washer-Dryers March JanMar.	10,908 23,325	18,746 - 42.0 49,029 - 52.0
Washers-Automatic & Semi. March	239,777	242,510 - 1.0
Washers—Wringer & All  JanMar.  March	608,849	667,916 - 9.0
Ciner	65,813 153,222	63,125 <b>-</b> 4.0 175,924 <b>-</b> 13.0
Electric Dryers March	56,475	60,496 - 7.0
Gas Dryers	175,534 25,618	205,021 <b>–</b> 14.0 29,259 <b>–</b> 12.0
JanMar.	91,057	105,154 - 13.0
Metal Furniture	*	* - 24.0 * - 20.0
Vacuum Cleaners March	349,972	339,918 + 3.0
JanMar. † <b>Television</b> February	850,417	892,731 - 4.7
Jan-Feb.	444,418 812,353	503,453 - 11.7 1,029,947 - 21.8
†Radio (1) February	1,115,029	1,142,368 - 2.4
JanFeb. Typewriters	2,205,102 94,864	2,798,156 - 2.2
JanMar.	246,181	* *
Room Air Conditioners March	224,100	210,900 + 6.3
JanMar. Steel Barrels & Drums February	528,600 2,291,983	441,500 +19.6 2,130,490 + 7.6
JanFeb.	4,681,183	4,756,772 + 1.6
Steel Pails February JanFeb.	5,040,434 9,920,455	5,158,538 - 2.3 11,360,643 - 12.7
(1) Including auto receivers  * Not reported † Output — all other figure		

\*Not reported † Output — all other figures are factory shipments or factory sales Sources for this information: Gas Appliance Manufacturers Association, National Electrical Manufacturers Association, American Home Laundry Manufacturers Association, Vacuum Cleaner Manufacturers Association, National Association of Furniture Manufacturers, Electronic Industries Association, Air-Conditioning and Refrigeration Institute, and U.S. Dept. of Commerce.



Gown by Fon Tayne reflected in stainless by Crucible Steel Company of America

Stainless by

CRUCIBLE

where a fine finish is only the beginning



Inspection of finished pieces takes place as parts leave spray booths.

High voltage power supply control panel (center) delivers 600 watts of power to electrostatic field.

PHOTO COURTESY ASHDEE DIV., ATLEE CORP.

# High-speed metallic finishing

THE AMERICAN DESK MFG. Co., Temple, Texas, produces tubular steel school furniture, tubular utility furniture, dinette sets, utility chairs and some office-type side chairs.

The company has recently converted its method of applying organic finishes to electrostatic, from hand spray and flow coating. One important point which caused the company to review its application methods was the necessity of using a variety of colors to meet buyers' requirements.

The first electrostatic spray system was installed to replace the hand spray operations. More recently the color selection was greatly expanded to include a wide choice of metallic finishes. This meant that much of the painting previously done by flow coating on another line must be converted to spray application. This has led to the installation of a second electrostatic spray painting system.

While the application of metallic finishes at high speed was of prime importance, American felt that with the multiplicity of colors, rapid changeover from one color to another was also of great importance.

A typical installation consists of two gun stands and a high-voltage unit. Five metallic colors are manifolded in such a way that a complete color change can be accomplished in three and one-half minutes.

All furniture parts enter the spray zone on an overhead monorail conveyor. They first pass through an ionization or charging zone, and then into the effective area of spray application. The guns are triggered automatically, and the spray pattern is adjusted for minimum overspray.

Even with the use of the high-voltage electrostatic field, the parts are rotated in the spray zone to ensure uniform application.

American Desk officials report that production has been increased by 50 percent as a result of the new setup, without taxing the system to capacity and without employing additional floor space.

MPM



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CHECK THESE

# C-F Lifter

# ADVANTAGES

- 1 Lifter handles wide range of coil sizes Requires minimum of only 10" to 12" between piles — saves storage room
- 1 man operation eliminates hookers Positive grip on coil no damage to material

• C. F. Coil Lifters are saving time and labor in many plants and warehouses because they can pick up, carry and set down a coil of steel faster and safer than any other method. Infinite jaw openings permit handling a very wide range of coil widths . . . carrying legs open fast, stay open until operator closes them on coil. Narrow legs require minimum space between piles —a space saving advantage. Made in motorized models for crane cab or pendant operation as well as manual types with chain wheel, in capacities from 3 tons up. Powered Rotating Heads available. Opening ranges to suit your requirements.

Write for Illustrated Bulletin

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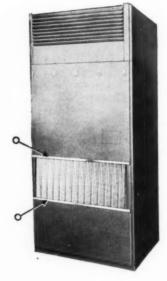
The aluminum extrusions furnished by General are precision extruded, punched and Generalsatin anodized . . . the latter, one of five special Generaline finishes. This beautiful natural finish is guaranteed not to rub off black or smudge. Like so many leading manufacturers, the Trane Co. has found that G.E.I. is geared to rapid, accurate production and unfailing delivery.

Why not let G.E.I. handle your parts extruding, additional fabricating and other special needs and problems? Write for catalog explaining G.E.I.'s many services.



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CONSULT YOUR CLASSIFIED PHONE BOOK UNDER ALUMINUM PRODUCTS

# MPM

# new supplies and equipment

# **Immersion Heating Elements**

Twist-O-Seal, a product of Electro-Therm, Inc., is a new concept of installing thermostatically controlled electric immersion heating elements in water tanks, and the product is said to be time and cost saving.

Circle No. 201 on Reader Service Card.

# Spray-On Vinyl Finishes

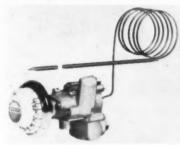


Multi-color, spray-on vinyl finishes for a wide variety of consumer, architectural and industrial products have been announced by Metal & Thermit Corp. In a two-step system, decorative vinyl finishes in unlimited color and with controllable texture can be applied to either phosphated steel or aluminum by conventional or electrostatic spray techniques.

This system permits application of a tough, multi-colored vinyl finish to products after fabrication. Since forming and welding are done before the finish is applied, no special care is required in fabrication. Inventory problems are also greatly simplified.

Circle No. 202 on Reader Service Card.

# Low Temperature Oven Control



The Model XL low temperature oven control, manufactured by The Wilcolator Co., is a high capacity gas valve and oven thermostat said to offer economical installation, long trouble-free service, and close control over low-oven temperatures. Combined with the AR-12 safety pilot, the combination is said to offer many engineering advantages. The combined Btu ratings of the AR-12 burner pilot and its standby pilot are low. Temperature range is 140 to 550 F.

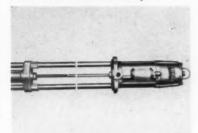
Circle No. 203 on Reader Service Card.

### **Zinc-Coated Steel**

A spangle-free, hot-dipped zinc-coated steel, developed specifically to improve paintability characteristics of current paintable galvanized steels, has been announced by Armco Steel Corp. The new material, designated Zincgrip A, Paintgrip, is chemically treated for maximum paintability. It is said to be the first spangle-free, hot-dipped zinc-coated steel chemically treated for painting that carries a 1.25 oz class zinc coating as specified by ASTM A-93. The sheet is also produced in light commercial coating weight.

Circle No. 204 on Reader Service Card.

### **Paint And Material Pump**



A high volume paint and material pump for use in multiple spray gun paint circulating systems has been developed by Binks Mfg. Co. Called the Hi-Volume Pump, it has a 3-1/3-to-1 pumping ratio, and delivers up to 15 gallons per minute at one-half gallon per cycle. Air operated, it delivers material on both the up and down stroke of the piston.

The air motor, a heavy duty twin spool air valve with large inlet and exhaust ports, has been designed to give a fast change in stroke. This results in less pulsation. Large capacity flow passages reduce back pressure, minimize icing, and provide peak efficiency and smoother delivery.

Circle No. 205 on Reader Service Card.

# Infinite Control



The Controls Div., Proctor-Silex Corp., will begin production of plug-in shaft models of Varitherm infinite controls. It will allow more production and delivery flexibility since the shaft and threaded sleeve attachment (if required) can be installed in controls from stock just prior to shipment. Range manufacturers may install the shafts themselves to simplify handling of service requirements. The plug-in models require no changes in mountings presently used.

Circle No. 206 on Reader Service Card.

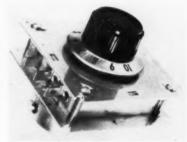
For further information on New Supplies and Equipment, use Reader Service Card on pages 89 & 90.

### **Air-Stream Burners**

Eclipse "Star Sixties" Air-Stream burners, a product of the Combustion Div., Eclipse Fuel Engineering Co., are designed for air heating application, oven heating systems, etc.

Circle No. 207 on Reader Service Card.

# **Adjustable Interval Timers**



A series of timers, manually adjustable for intervals of from five seconds to five hours, have been announced by The A. W. Haydon Co. Designed for application with washers, dryers, vending machines, and process or production equipment, the Series 41500 adjustable interval timers are designed with a precision snap-action sport switch, whose life is stated as being seventimes the minimum Underwriters Laboratory requirements at the rated load. According to company engineers, the 41500 Series is a simplified version of a high reliability timer designed for military use, and adapted for operation in commercial and industrial applications.

Circle No. 208 on Reader Service Card.

# **Compact Blower**



The Redmond Co., subsidiary of Controls Co. of America, has developed a line of compact blower packages for application in coffee, hot soup and food venders. They range in output from 50 to 800 cfm.

Circle No. 209 on Reader Service Card.

# Primer For Plastisols, Organosols

A primer, Armitage P-289, has been announced by John L. Armitage & Co. It has been developed specifically for use with





Combination Dual Head Edge Trimmer and Scrap Chopper

> Roll Straightening Unit

Tahlstrom
SHEET & STRIP
FABRICATING EQUIPMENT

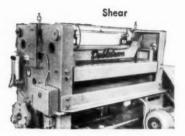
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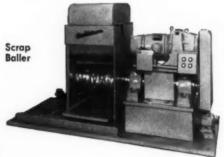
Available as individual units or integrated components of complete processing lines.

Dahlstrom builds complete Roll Forming Lines, Shear Lines and Slitter Lines.

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Automatic Stacking Unit





Roll Forming Machine



Sliding Die Type Cut-Off Press

# Dahlstrom MACHINE WORKS

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Circle No. 313 on Reader Service Card.

plastisols, organosols and the company's Armorhide textured vinyl finishes. The primer is said to exhibit excellent color retention and resistance to salt spray and humidity. Its adhesion to substrates, such as steel, aluminum, galvanized metal and glass is claimed to be outstanding. The primer may be applied by spray or dip coating and can be air-flashed or baked. Drying time when air-flashed is about five to 15 minutes; when baked, from five to ten minutes. Clear or pigmented samples are available for laboratory testing.

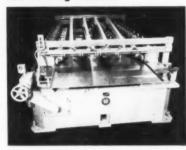
Circle No. 210 on Reader Service Card.

# **Vinyl Sheeting**

The General Tire & Rubber Co.'s Pennsylvania Div. has announced a vinyl sheeting for highly styled and decorative vinyl-to-metal applications. A new process of compounding and blending of materials has made the vinyl, called Boltaflex 500, adaptable to all current metal fabrication. It provides a vinyl coating many times thicker than standard finishes, and offers a wide variety of patterns, colors and embossings.

Circle No. 211 on Reader Service Card.

# **Roll Forming Machine**



The PTR 55-10 special 10-station panel-type roll forming machine maufactured by the Maplewood Div., Rockford Machine Tool Co., produces all steel panels eight in. to 66 in. in width, forming both edges in one pass, at forming speeds of 40 to 120 fpm. The machine has a motor drive to the movable head and can change position from eight to 66-in.-wide panels in 40 seconds. It is equipped with two sets of roller dies permitting the production of two different types of panels in any of the many widths required.

Circle No. 212 on Reader Service Card.

# Free-Machining Stainless

Universal-Cyclops Steel Corp. has announced the commercial availability of a new free-machining chromium-nickel stainless steel designated Uniloy 303MA.

The company says the greatly improved machinability of Uniloy 303MA compared with regular free-machining ars: Type 303, permits increased output of machined parts and longer tool life, resulting in considerable dollar savings for plants now using regular Type 303 for machined parts.

Circle No. 213 on Reader Service Card.

TO PAGE 87 ->



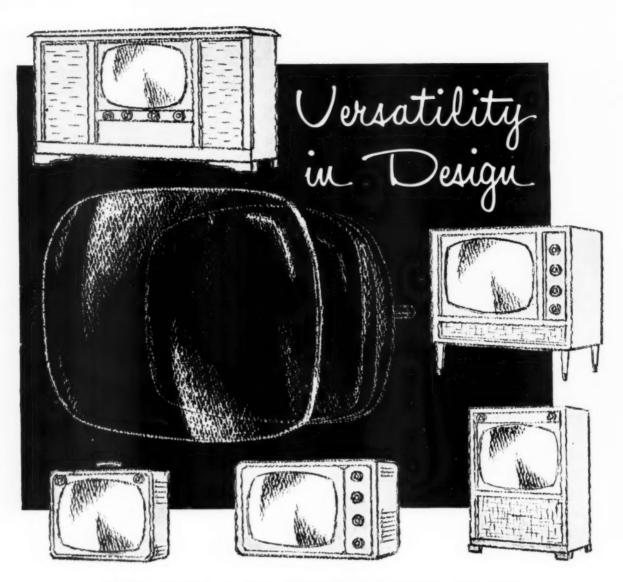
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GLASS — one of the most versatile of materials. In the hands of a designer — unlimited potentiality of product design — if complete freedom of both material and designer is blended. — Why limit TV design?

Use glass designed to and for the complete TV cabinet — not just the tube. **MARSCO** can supply curved TV glass engineered to your specifications.

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Special Shapes for: Instruments, Gauges, Household and Industrial Appliances.









Convex Glass

Heat-treated Glass

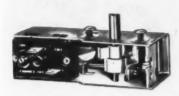
MARSCO MFG. CO., 2901 S. HALSTED ST., CHICAGO 8, ILL.

Circle No. 333 on Reader Service Card.

# **New products**

FROM PAGE 85

### **Humidity Controls**



A pair of compact humidistats for control of humidifier and dehumidifier units in air conditioning systems have been introduced by Ranco, Inc. Called the J10 and J11, these wide range humidistats respond to atmospheric content within a confined area to automatically cycle humidifying or dehumidifying equipment. Both controls operate efficiently within a 20 to 80 percent relative humidity range.

The controls are available in a 1000 Series for dehumidifiers and a 2000 Series for humidifiers.

Circle No. 214 on Reader Service Card.

### **Externally Adjustable Switches**



A small, lightweight device which opens or closes an electrical circuit when pressure, differential pressure, or flow becomes too high or too low has been developed by Pall Corp. It can be used in all types of fluid lines including pneumatic systems and compressed gas lines, hydraulic systems, process streams, and other types of fluid systems where an alarm device is required.

These Deltadyne units can withstand system pressures up to 5000 psi.

Circle No. 215 on Reader Service Card.

# **Money Changer**

A money changer for 10-cent vending machines has been developed by the ABT Div., Automatic Canteen Co. of America. The unit, called the Model 6000, activates the vending electrical system upon the insertion of a dime, two nickels, or one quarter. When a quarter is inserted, it pays out a dime and a nickel in change, or can be set to pay out three nickels in change. Change coin tubes are filled by nickels and dimes paid into the changer.

Circle No. 216 on Reader Service Card.



To Keller Manufacturing Co., Inc., it means a savings of nearly \$50 a day in finishing costs on leaf rakes. And, theirs is a comparatively small plant operation.

Before moving into their new plant, this St. Louis manufacturer of Sweep-Easy lawn and garden tools investigated and tried out various finishing equipment. They chose Ransburg No. 2 Process to do the job because they found that only the Ransburg Electrostatic Hand Gun could give them the desirable increase in production-with improved quality-and at lower cost.

# PRODUCTION IS NEARLY DOUBLED QUALITY OF FINISH IS IMPROVED

With the Ransburg Hand Gun, Keller's daily painting prodution of leaf rakes nearly doubled what they were formerly getting with air hand spray. And, where they used to get only 168 rakes per gallon of paint, they now get 426 per gallon-over 21/2 times as many—actually an increase of over 150% in paint mileage. With the unique "wrap-around" feature, electrostatic is improving the quality, providing a complete, uniform coating over all areas-even on the tine edges.

# NO REASON WHY YOU CAN'T DO IT, TOO!

See how the Ransburg Electrostatic Hand Gun can save time . . . paint . . . and cut costs in YOUR finishing department. Or, if your production justifies, it'll pay you to investigate Ransburg's automatic electrostatic spray painting equipment. Write for our No. 2 Process brochure which shows numerous examples of modern production painting in both large and small plants.



# RANSBURG Electro-Coating Corp.

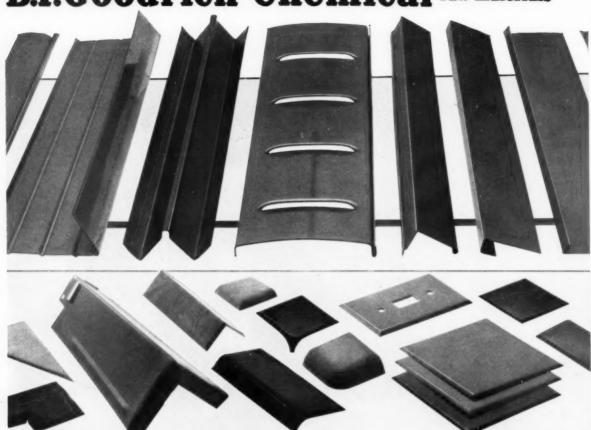
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Circle No. 350 on Reader Service Card.

Another new development using

# B.F. Goodrich Chemical raw materials



# NEW METAL COATING USING GEON... CUTS FABRICATING COSTS

Before they were shaped or formed, bent or punched, each of the parts shown above was coated with a new enamel-type coating made with Geon polyvinyl material. The coating was done while the metal was flat in one piece—the easy way. Each manufacturing operation proved again the unusual punishment the Geon coating can take—there is no effect on appearance or performance.

Geon makes the coating tough and durable. It will last far beyond normal expectations. In fact, after thorough tests, one manufacturer determined it could be safely warranted for ten years—even when his product is used outdoors exposed to the elements—against crazing, cracking or blistering.

Geon also gives a coating superior abrasion, electrical and chemical resistance. It contributes these and other advantages in other products, too, such as moldings, extrusions, foam or sheet. Get more information by writing Dept.NB-4-B.F.Goodrich

Chemical Company, 3135 Euclid Avenue, Cleveland 15, Ohio. Cable address: Goodchemco. In Canada; Kitchener, Ontario.



B.F.Goodrich Chemical Company a division of The B.F.Goodrich Company



GEON vinyls . HYCAR rubber and latex . GOOD-RITE chemicals and plasticizers

# Reader Service

### COMPACT MYLAR SAMPLER

A compact sampler showing the complete line of metalized duPont polyester film has been issued by Coating Products, Inc. The demonstration book includes 33 actual tipon samples of the entire line of colors. Many applications for industrial usages are illustrated along with technical data.

Circle No. 101 on Reader Service Card.

### COMMERCIAL THERMOSTATS

A new bulletin issued by Stevens Mfg. Co., Inc., covers the firm's line of Type GP Commercial Thermostats, According to Bulletin 3560, the units are impervious to moisture, corrosion, fumes or dust because of their potted construction. The bulletin gives technical information such as ratings, ranges, tolerances and differentials, and describes their design features.

Circle No. 102 on Reader Service Card.

### PLASTIC COATING FOR METAL

A four-page bulletin describes Pfaudlon 301, a medium-priced, corrosion-resistant plastic coating for metal produced by The Pfaudler Co. According to the bulletin, the sprayable coating has many areas of application in the process industries. Recommended service and typical equipment applications are presented, as well as base metals to which the material has been successfully applied.

Circle No. 103 on Reader Service Card.

### RUBBER PRODUCTS CATALOG

A new 60-page catalog covers hundreds of products in the industrial rubber line manufactured by Cincinnati Rubber Mfg. Co. Divided into sections on belting, hose molded products and rubber specialties, the catalog is designed to provide the maximum in technical information. The user can easily find the type of product for his particular service by using the comprehensive index.

Circle No. 104 on Reader Service Card.

### ALUMINUM FINISHING COMPOUNDS

A newly revised index of all MacDermid compounds for finishing aluminum has been released by MacDermid, Inc, The index lists a full range of aluminum finishing processes, including compounds used in anodizing, bright dipping, burnishing and barrel finishing, chemical milling, chromate conversion coatings, cleaning, corrosion protection, deburring, deoxidizing, electropolishing, pickling, plating, pre-painting treatment, rinsing and drying, spot welding, stripping and surface activation.

Circle No. 105 on Reader Service Card.

# HOW A SET SCREW WORKS

The three important "holding powers" of a properly tightened set screw are analyzed in an eight-page technical bulletin published by Standard Pressed Steel Co. The installed set screw, used to hold a collar or gear on a shaft, must have adequate axial, torsional and vibrational holding powers. The first two indicate the screw's resistance to endwise and rotational movements of the shaft. The third holding power designates

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I would like to receive MPM magazine

What article in this issue interested you most? \_\_\_

Any other comment? \_

the screw's resistance to loosening. Sufficient tightening is the key to all three holding powers, the bulletin points out.

Circle No. 106 on Reader Service Card.

### 12-INCH CUTOFF MACHINE

An eight-page bulletin describing the recently introduced Delta 12-inch cutoff machine is now available from Rockwell Mfg. Co.'s Delta Power Tool Div. The bulletin describes the four types of machines which are available, Operational photographs describe the features which are said to save production time and promote operating economy. The bulletin also includes specifications, catalog listings, and listings of all motors and motor controls and accessories.

Circle No. 107 on Reader Service Card.

### GAS-FIRED, INFRA-RED BURNERS

New Infra-Line gas-fired, infra-red burners designed for low-temperature commercial and industrial process heating are detailed in a recently issued bulletin. Applications for the burners, which are manufactured by Eclipse Fuel Engineering Co., include ceramic drying and metal finishing. Burners are manufactured in 6 by 12-in. sections and are available with end-flanged or bottom-flanged inlets.

Circle No. 108 on Reader Service Card-

### MATERIALS HANDLING CONTAINERS

An illustrated brochure issued by Chicago Mill and Lumber Co. details the firm's line of containers for handling a wide variety of materials and products. Included are

FIRST CLASS

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St. Joseph, Mich.

descriptions of woodsteel boxes, hinged corner mats (collapsible types), unit packs, wirebound pallet boxes, hinged-corner containers, klimp-fastened containers, steelstrapped containers and hinged-lid containers.

Circle No. 109 on Reader Service Card.

### "SHEET FLOATER" BULLETIN

A four-page bulletin describes the Dings Magnetic Separator Co.'s magnetic "sheet floater" — a device used to facilitate the handling of stacked steel sheets during production operations such as pressing, punching and spot welding. Normal sizes, ranging from 7 to 25 in. in height and capable of handling up to ¼-in. sheet, are described and specified.

Circle No. 110 on Reader Service Card.

### FASTENERS AND CORROSION RESISTANCE

Various kinds of corrosion and the different metals suited to resist them are given a thorough review in a 24-page illustrated brochure issued by the H. M. Harper Co. Written to help manufacturers build corosion resistance into their products, the guide analyzes the seven basic types of corrosion and shows what specific kinds of metals can best resist them.

Circle No. 111 on Reader Service Card.

### ALL-STEEL DIE SETS

Literature describing a new line of allsteel die sets called Econoline and consisting of 216 different combinations of sizes and thicknesses in standard models is now available from Wheatley Economy Die Sets, Inc.

Circle No. 112 on Reader Service Card.

# PLATING AND METAL FINISHING

Hanson-Van Winkle-Munning Co. has announced the availability of a new edition of its Electroplating Process Bulletin. The 24-page, two-color bulletin, EP-103, is an extension of an earlier bulletin. Nineteen plating and other metal finishing processes and procedures are described. Solution preparation, type of deposits, operating conditions, equipment required and applications are listed for each of the processes.

Circle No. 113 on Reader Service Card.

# SPRINGS AND SPRING-LIKE THINGS

A new 16-page manual published by Associated Spring Corp. gives engineers and purchasing executives information needed to specify custom-designed and standardized precision springs. The manual summarizes basic information concerning helical springs, flat springs, wire forms, special fasteners, precision metal stampings and assembled spring-like devices.

The literature includes design briefs

The literature includes design briefs which simplify the specifying of compression, extension, torsion and flat springs, as well as wire forms.

Circle No. 114 on Reader Service Card.

### BUFFING AND POLISHING

A new 20-page, two-color illustrated catalog describes a line of semi-automatic machines for low-production deburring, buf-fing and polishing operations. The catalog, offered by Acme Mfg. Co., also describes newly developed accessories and attachments for increasing efficiency of semi-automatic finishing operations.

Circle No. 115 on Reader Service Card.

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# Superior STAINLESS

foils corrosion-lengthens life

The Superior Stainless combination of higher strength for heavier loads, abrasion resistance for longer wear, and corrosion resistance for maximum service life and cleaning ease is well illustrated in these applications by Atlas Chain & Manufacturing Co. Plus values to the maker are Superior's uniform fabricating ease and dependability—prompt deliveries—close cooperation at all times. Why not enjoy these benefits for *your* stainless strip applications? Call us!



SUPERIOR STEEL DIVISION

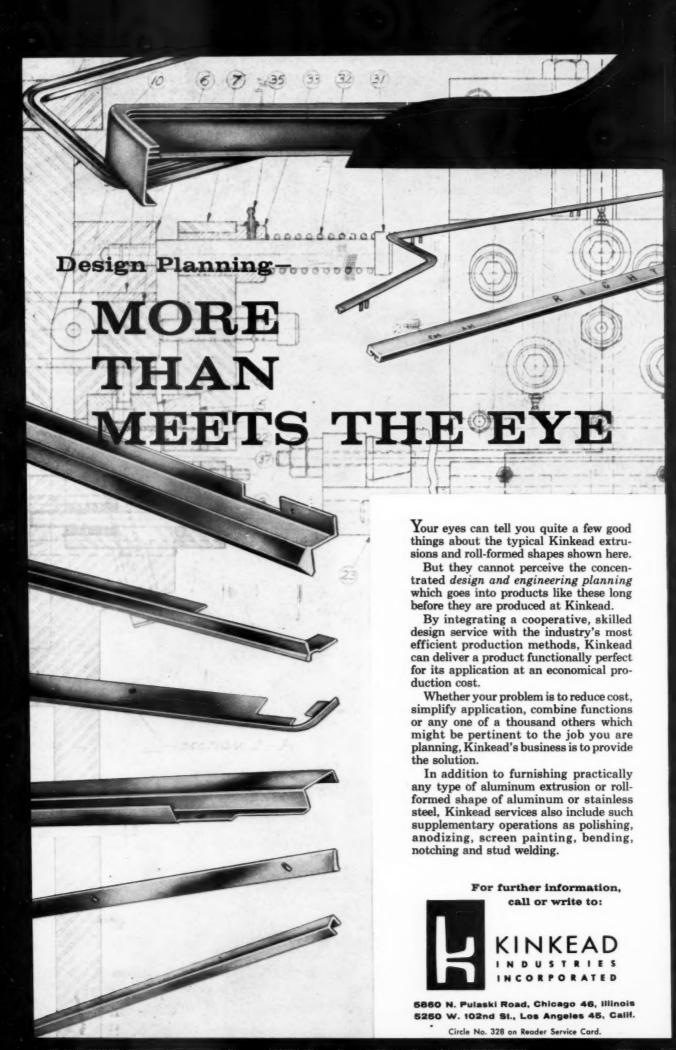
OF

COPPERWELD STEEL COMPANY CARNEGIE, PENNSYLVANIA

For Export: Copperweld Steel International Company, New York

Circle No. 357 on Reader Service Card.





#### MPM

#### new industrial literature

#### SHEET AND COIL HANDLING

A new 24-page catalog published by Cullen-Friestedt Co. provides reference material on all types of C-F sheet and coil handling lifters and related equipment. Many varied applications of the lifters are shown, with photographs of machines of various capacity under "one-man" positive control. The catalog also gives details and information on motorized swivels, "C" hooks, and many special lifters designed to specific requirements.

Circle No. 116 on Reader Service Card.

#### EXPANDED METAL CATALOG

A new catalog issued by Designers Metal Div. contains full-size illustrations of 38 decorative expanded metal designs and gives specifications for each as to weight, dimensions, percentage of open area, and materials available.

Many end products utilizing expanded metal are illustrated throughout the catalog. Sections on trade terminology, metals used, finishes, fabrication and ordering information are included as well as illustrations and specifications of commercial meshes and gratings.

Circle No. 117 on Reader Service Card.

#### PUNCH AND DIE SHARPENER

Catalog 1125 fully describes and illustrates the new Unipunch Universal Punch and Die Sharpener manufactured by Punch Products Corp. The self-contained, portable, bench-type sharpener is equipped with a built-in universal fixture to provide a handy, convenient, economical method for sharpening punches and dies.

Circle No. 118 on Reader Service Card.

#### WATER-WASH SPRAY BOOTHS

A new line of "economy" water-wash paint spray booths designed to give production-line economy and efficiency on short runs is described in a bulletin issued by Despatch Oven Co. The new line uses nozzle sprays with overlapping patterns to achieve high-speed removal of paint pigments and volatiles. Use of these booths is said to allow small and medium size finishing departments production facilities comparable to those of large operations.

Circle No. 119 on Reader Service Card.

#### VARIABLE SPEED DRIVES

A new 112-page variable speed catalog features "lube-free" integral and fractional horsepower variable speed drives manufactured by Sterling Electric Motors, Inc. Cutaway drawings and photos are used to detail working parts. A number of integral and fractional modifications are illustrated, including single, double, and triple reductions, as well as various horizontal and single and double worm assemblies.

Circle No. 120 on Reader Service Card.

#### PORCELAIN ENAMEL STRIPPING

A new material for stripping porcelain enamel is explained in a data sheet recently issued by Kolene Corp. Called deNamel, the material is a molten salt bath consisting of a hygroscopic alkali base containing additives capable of dissolving silicates—thereby accomplishing a complete chemical removal of porcelain enamel. Average stripping time, according to the literature, is 5 to 15 min. Following stripping, the parts are dipped in water, pickled for a few minutes in a dilute acid, given a final water rinse, and they are ready for re-enameling.

Circle No. 121 on Reader Service Card.

#### TRUCKSTER COST ANALYSIS

A new booklet that analyzes the operating and maintenance costs of Cushman Trucksters used for various applications, is available from Cushman Motors. The booklet is based on interviews with 55 users of Cushman Trucksters in all sections of the country. For each application, the booklet describes the number of Cushman Trucksters in use, type of work, length of service, and gives a complete breakdown of total mileage, cost of gas and oil and cost of maintenance and repairs.

Circle No. 122 on Reader Service Card.

#### EMULSIFIABLE RUST PREVENTIVE

A low-cost, water-compatible, non-flammable rust preventive that can be applied directly to dry surfaces or to surfaces wet with water or soluble cutting oil emulsions is described in a bulletin issued by Magnus Chemical Co. The new product, Magnafilm 230, is said to furnish excellent indoor protection, eliminate fire hazards, remove corrosive fingerprints, and provide protection against fingerprint damage during subsequent handling.

Circle No. 123 on Reader Service Card.

#### METAL SPRAY PAINTING MASKS

A new brochure which describes and illustrates all of the various types of masks employed today in the rapid, accurately controlled, multiple color wet painting of mass-produced products has just been issued by Conforming Matrix Corp. Examples of line production spraying with these electro-formed metal masks are pictured. Requirements for mask ordering are also detailed.

Circle No. 124 on Reader Service Card.

#### SNAP-ACTING THERMOSTATS

A new four-page bulletin describes a line of Commercial Type A and AY snap-acting fixed-temperature thermostats manufactured by Stevens Mfg. Co., Inc. The bulletin describes the various models comprising the line, and gives information on available terminals, mountings, etc. Ranges, ratings and differentials are also covered, and suggested applications are listed.

Circle No. 125 on Reader Service Card.

#### CHEMICALS FOR ULTRASONIC CLEANING

A 14-page booklet, "Chemicals for Ultrasonic Cleaning," has been issued by the ultrasonic power division of Branson Instruments, Inc. The booklet gives extensive inFor further information on New Industrial Literature, use Reader Service Card on pages 89 & 90

formation on physical properties of most commonly used cleaning chemicals, as well as suggested applications, working temperatures and procedures. By following these recommendations, the company says, users of ultrasonic equipment should be able to select the chemical best suited for a specific cleaning problem.

Circle No. 126 on Reader Service Card.

#### ALUMINUM SELECTOR FILE

Aluminum alloy sheet, coil and blank data needed most often by product designers, architects, engineers and purchasing departments are summarized in a new 3-Way Design Data file developed by Fairmont Aluminum Co. The file may be used as a wall chart, file folder, or as an insert in catalogs and specifications for fabrication or construction.

The principal selector chart outlines detailed data on 10 most-used alloys, including applications, uses, strengths, thermal and electrical conductivity, density, specific gravity, melting range and manufacturing limits

Circle No. 127 on Reader Service Card.

#### PRESS-FEEDING MAGNETS

New press-feeding magnets with no moving parts are described in a data sheet recently issued by Magni-Power Co. The magnets utilize a fixed cam plate which allows magnetic contact to be broken while holding steel in place. Designed and engineered for handling blanks, stampings or formed steel parts up to 10 lbs., the line of magnets feature durable, easy-to-grip handles, thin-wall tube shafts, and magnetic strength that is guaranteed indefinitely.

Circle No. 128 on Reader Service Card.

#### REDUCING CLEANING MAINTENANCE COSTS

A new Tornado handbook available from Breuer Electric Mfg. Co. describes 79 time and money saving cures for "house-keeping headaches" — all performed by the Tornado Series 400 industrial vacuum. The handbook suggests various weys to accomplish cleaning easily and economically.

Circle No. 129 on Reader Service Card.

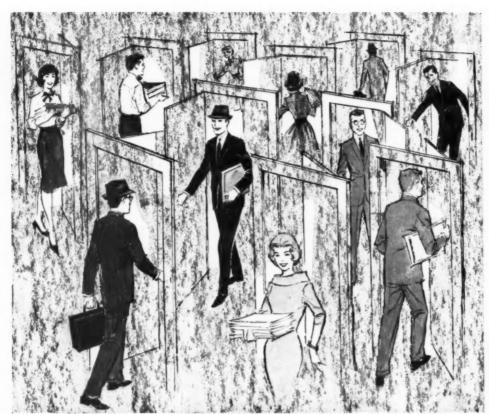
#### STEEL TUBING CATALOG

An eight-page general catalog describes both seamless and electric welded steel tubing available from Ohio Seamless Tube Div., Copperweld Steel Co. With new electric weld tube mills, the company now of fers electric welded carbon steel tubing up to 7½-in. on by .375-in. wall in mechanical and pressure grades.

Circle No. 130 on Reader Service Card.

#### VERSATILITY IN RUBBER

A 12-page booklet, "Versatility in Rubber," offered by Roth Rubber Co., tells of



#### Open Sesame

Tens of thousands of doors of every description, in many of the most distinguished homes, commercial and office buildings, are equipped with the famous hinges produced by The Stanley Works, New Britain, Conn. In fact, because they provide advanced styling and long-lasting beauty to what had always been considered "stock hardware", Stanley hinges are specified by knowledgeable architects and industrial designers the world over. The name Stanley has become a byword wherever hardware users want more than function alone.



# STANLEY ADDS BEAUTY AND STYLE TO PROSAIC HARDWARE WITH THE HELP OF TEN-YEAR OLD MEAKER AUTOMATIC PLATER

To most people, a hinge is a piece of hardware on which doors or piano tops swing open and closed. Today's architects and industrial designers go beyond function alone when specifying hinges, however, for they must complement modern materials and sleek design elements.

With the help of a MEAKER AUTOMATIC PLATING MACHINE, Stanley Hardware Division produces a family of hinges with advanced styling and life-time attractive finishes, specified for distinguished buildings the world over.

According to Stanley management, their MEAKER "AUTOMATIC" has also helped expand markets by providing a variety of durable finishes unmatched by competitive manufacturers.

Typical, is a new forged bronze paumelle hinge for flush interior doors, finished in beautiful satin chrome, to complement interior decor.

What's more, absolute minimum down time has been recorded since the MEAKER "AUTOMATIC" was installed over ten years ago. During this time, Stanley has also processed literally tons of chrome or nickel finished products of their hardware division, on their MEAKER.

To expand markets by getting the jump on competition, more and more progressive manufacturers are turning to MEAKER AUTOMATION ENGINEERS. Our catalog, WHEN TO AUTOMATE, gives valuable pointers for improving profits through automatic plating or metal finishing.

### THE MEAKER COMPANY



**Nutley 10, New Jersey** 

Factories and offices Chicago 50, Ill., Los Angeles, Cal. and Nutley 10, N. J.

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#### COMING FEATURES

STANDARDIZATION — FIFTH IN A SERIES

OPERATION OF A 12-PLANT QUALITY CONTROL SYSTEM



ELECTRIC FURNACE MEETS SPECIAL NEEDS
OF MOBILE HOMES
WHAT ABOUT DOUBLE INSULATION FOR APPLIANCES?





REMOVING SOLDERING FLUX FROM STAINLESS STEEL HOW KAISER REDUCED BATHTUB SCRAP



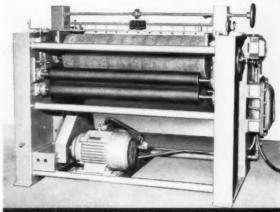
A COMPACT, VERSATILE FINISHING SYSTEM FOR TYPEWRITER PARTS

STRAIN GAUGES FOR EVALUATING STRESSES IN PORCELAIN ENAMELED PRODUCTS



HOW SMALL PRESS BRAKES PAY BIG DIVIDENDS
HANDLING FIBER GLASS AT FOWLER
A WEAR-ABRASION TEST FOR PORCELAIN ENAMEL





## New UNI-FINISHER easily solves many metal polishing problems

The Uni-Finisher is a ruggedly constructed, precision controlled machine employing the recently developed impregnated nylon abrasive roll, or wheel, destined to play an important part in metal polishing and finishing operations everywhere. Roll types and sizes available, and oscillation variable to meet many needs. Handles sheets 6" to 74" wide at speeds up to 60 lineal ft./min. Write us today . . . perhaps a Uni-Finisher can solve your problem.



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METAL PRODUCTS MANUFACTURING



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## go first class

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There are two requirements for a top-notch food preparation area: (1) Equipment of good design that eliminates places for bacteria to collect; and (2) Equipment made of lifetime stainless steel—the smoothest, easiest to clean and most bacteria and vermin resisting material you can buy. It's a better product if it's made of stainless!



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and ColorRold®

PRODUCERS OF Micro Rold STAINLESS SHEET & STRIP

WASHINGTON, PA.

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the need for manufacturers to analyze the rubber components used in their products on a continuing basis. The booklet details the abilities of rubber to absorb sound and vibration, resist high voltage, solvents, oils and chemicals. An outline of types of rub-ber materials, importance of mold design and a description of manufacturing processes give further insight into the problemsolving steps in the development and production of rubber parts.

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#### PROFITING FROM THE BUSINESS PRESS

How can the American businessman cope with the reading load posed by the evergrowing though important business and trade publications? How can he develop efficient reading habits so that he can extract the maximum personal profit from the business press?

Fred Wittner, president of a New York advertising and public relations firm specializing in communications to industry, has produced a succinct "how-to" booklet that will aid in profitable reading of business publications. The booklet, titled "Why, When and How to Read Business Publi-cations," is available without charge.

Circle No. 132 on Reader Service Card.

#### PRE-PLATED METALS

A showing of actual samples of pre-plated metals having design-rich textured surfaces is featured in a new Crimp Metal Pak which has just been announced, available on request from American Nickeloid Co. The new Crimp Metal Pak incorporates a number of bright-finished samples of crimps in diagonal, square, diamond and horizontal patterns. They are shown with heavy plated finishes of copper as well as brass, nickel, and chromium. Base of steel is the most commonly used material, although the textured metals are offered in other base metals such as copper, brass, and zinc. Also contained in the Pak is a data folder giving table of properties and sheet sizes, gauges and tempers

Circle No. 133 on Reader Service Card.

#### **NEW PUNCH PRESS**

A bulletin describing "a new concept in punch press design" is available from Kenco Mfg. Co. Called Kenco Kompacs, the presses are available in 3 and 5-ton capacities. According to the literature, exclusive features of the new presses include a totally enclosed yet easily accessible flywheel, crankshaft, connection rod and ram; rearmounted flywheel; and a new self-contained interchangeable power transmission unit which is available in various stroke lengths from 1/4 to 2 in.

Circle No. 134 on Reader Service Card.

#### SNAP-ACTING LIMIT SWITCHES

A new General Electric Bulletin describes the firm's new CR115 B precision snap-acting limit switches for highly repetitive operation in limited-space applications. Photos show the three available forms-button-operated, plunger-operated and roller-lever operated. A typical application is pictured, and dimensions, ratings and pricing information is included.

Circle No. 135 on Reader Service Card.

#### BENDING PRESS BULLETIN

Bulletin No. 379 issued by Pines Engineering Co., Inc., provides 12 pages of illustrations, design features and description of a complete line of bending presses. The principles, advantages, limitations, procedures and types of bends are covered in detail. Numerous examples of typical applications complete with part description and production figures are included.

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#### NOZZLES FOR METAL FINISHING

Bulletin 106 describes the complete Spraying Systems Co. line of spray nozzles and accessories specifically used in the metal finishing field. A reference chart lists applications and types of nozzles used. A complete spray nozzle reference manual on washing, rinsing, fogging or wetting, coating and related operations is included.

Circle No. 137 on Reader Service Card.

#### WELDING ALLOY WALL CHART

A new wall chart enables rapid selection of welding, brazing and soldering alloys and fluxes. Offered by All-State Welding Alloys Co., the chart measures 191/2 by 251/2 inches, and describes each joining alloy in detail, with recommended pre-heats, amperage or working temperatures, tensile or shear strengths, identification and packaging comments.

Circle No. 138 on Reader Service Card.

#### GALVANIZED INSPECTION MANUAL

American Zinc Institute, Inc. has released a new inspection manual governing protective zinc coatings on products hot-dip galvanized after fabrication. Entitled "Inspection Manual for Hot-Dip Galvanized Products," the 34-page book was prepared to help manufacturers achieve optimum corrosion protection.

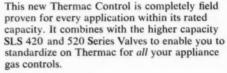
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#### A Combination Automatic Control For Your Volume Furnace Line

Here is a new Thermac Gas Control designed and built specifically for furnace use. It's the Thermac SLS-400 EOP series for all popular furnaces and other appliances operating up through and including the 105,000 BTU range. Look at the outstanding features of this completely assembled unit:

- \* Silent, oil filled automatic operator.
- \* Step-flow controlled ignition.
- ★ Independent pilot supply with 100% automatic safety.
- ★ 25 V. 115 V and 220 V operation.
- \* Straight through or bottom outlet to suit your requirements.
- \* A.G.A. certified for natural, manufactured and LP Gas.
- \* Safety, regulator and automatic main control valve combined in one unit.



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# For you who came in late

# A short, short history of modern porcelain enameling

Look quickly with us from the porcelain enamels of the World War I period to the thin, tough, brilliantly beautiful coatings produced today. Then, porcelain enameling was more of an art than a science. Each "craftsman" zealously guarded his secret formulas, using whatever raw materials he could get, and constantly making "adjustments" to compensate for the variables that were ever present.

In 1920 the folks at Ferro set out to do something about this. First, a world-wide search was made for the finest raw materials. Then *checks* were developed to see that every shipment conformed to the "specs" in every way. Next, the material mixing and smelting opera-

in every way. Next, the material mixing and smelting operations were brought under scientific control, with frequent *checks* all through the process to assure complete uniformity in each frit produced for customers' use.

Thus was born the "Ferro Check" trademark. However, that's only the beginning of the story.



To help customers "fit" these better porcelain enamels to the wide variety of sheet-steels used in that day, Ferro developed an extensive "Customer Service" lab and field force. New mill additions

were worked out. Better metal-pickling processes and firing methods were introduced. Then completely new furnaces were developed by Ferro, and the entire porcelain enameling process further refined for modern conveyorized, low-unit-cost production. By this time (1930) the Ferro Check, covering many products and services, had come to stand for complete customer satisfaction in any or all phases of porcelain enameling.



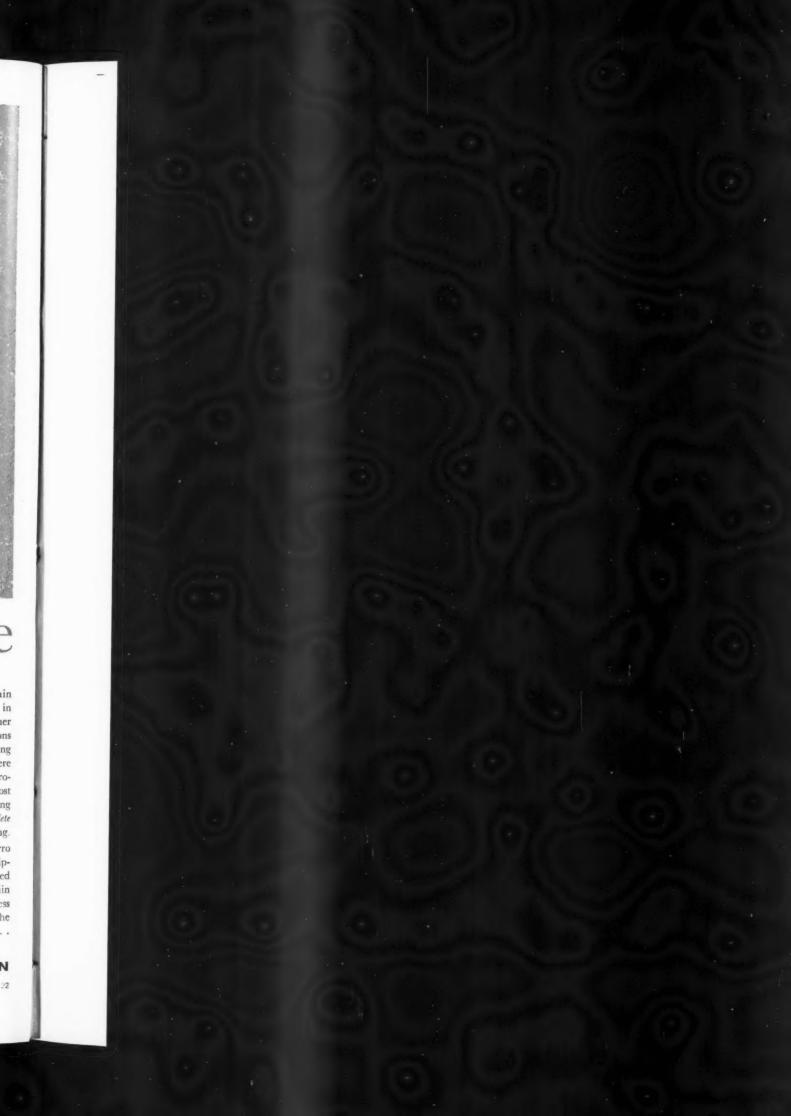
Today, thirty years later, you'll still find the Ferro Check trademark on Ferro's products and equipment. You'll find, too, that Ferro has maintained its position of leadership in serving the porcelain

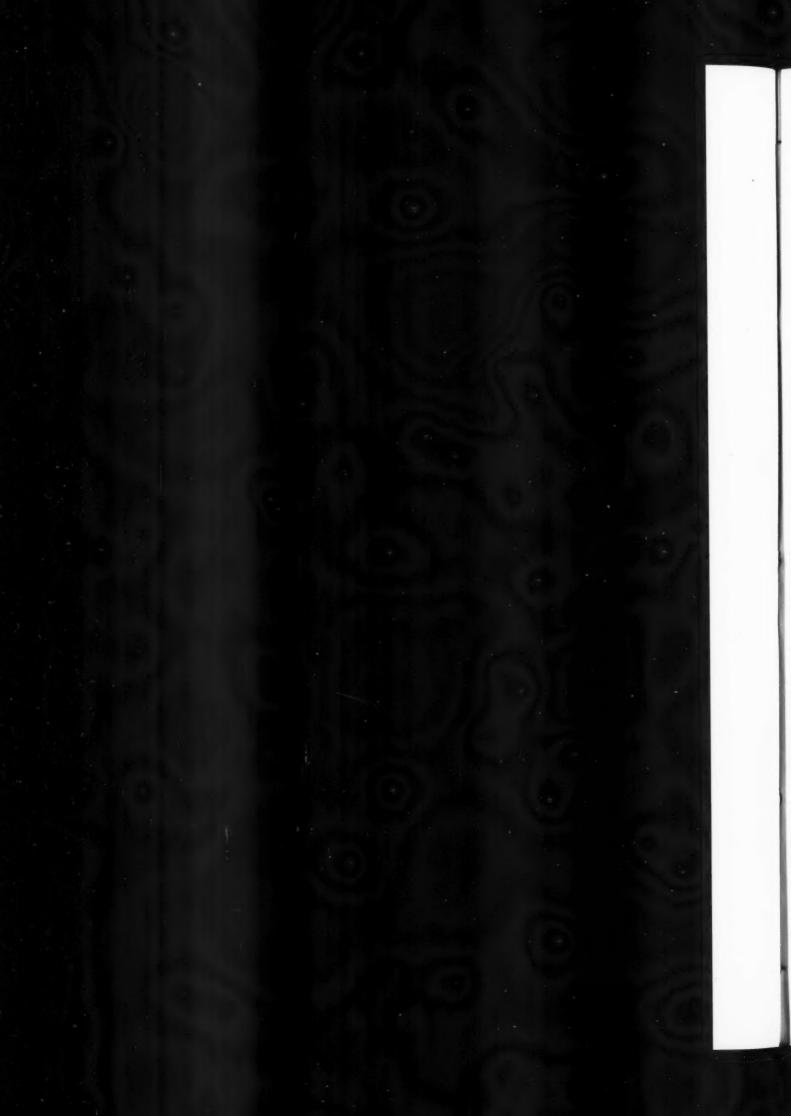
enameling industry—through product development, process refinements, new production techniques, all subjected to the usual "Ferro Checks" before they are brought to you... for your profit.



#### FERRO CORPORATION

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### MPM

#### personals

Roy B. Totten has assumed the position of sales engineer of Norge thermoelectric refrigeration products, a newly created post. Totten, an electrical engineer, has been with Norge since 1954 as product service engineer and refrigeration product specialist.

Norge also announced the appointment of E. E. Shelton as national wringer washer sales manager, and James J. Loney as western field sales manager.

C. E. Ruelle has been appointed sales coordinator for the Appliance Div., Hamilton Mfg. Co., Two Rivers, Wis. His primary responsibility will be to coordinate sales and engineering efforts in product developments for the company's laundry appliances.

Len Conrad has been elected president of Heil-Quaker Corp., Nashville, Tenn., manufacturer of central heating and air conditioning equipment and space heaters. He had been executive vice president and general manager of the firm for the past two years.





John J. Rich has been named manager of the Industrial Div., American-Standard. He joined the division in 1959 as purchasing agent.

TO NEXT PAGE ->



The state of the s

TOTTEN

SHELTON

Edwin D. Martin has been engaged by Lead Industries Association as a full-time architectural consultant. He will consult on individual projects and also be responsible for the preparation of general specifications and application procedures for lead-construction products.

Earle Schirmer has been named to the new post of chief engineer of Zero Mfg. Co., Burbank, Calif. He will direct engineering projects for the company's line of aluminum and magnesium containers and other products.

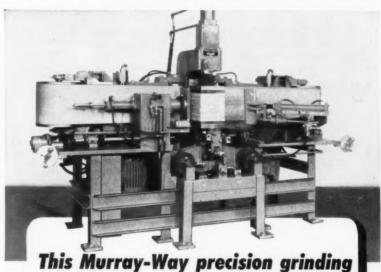




SCHIRMER

MARTIN

H. P. Schoerner has been appointed manufacturing manager of the Day & Night Mfg. Corp.'s production facilities at La Puente, Calif. He joined the company in 1946 as a spot welder, and served as manager of production control prior to his recent appointment.

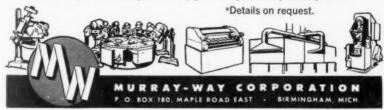


This Murray-Way precision grinding equipment completely eliminated a chronic scrap problem—paid for itself in a few weeks!\*

This is just one of many examples of how Murray-Way engineering experience and equipment have helped manufacturers meet and beat today's tough competition. They can help you too.

Murray-Way has a complete line of cost saving equipment for automatic polishing, buffing, grinding, roll-coating, filtering, loading, unloading, conveying, and completely automated production lines.

Let our experienced engineers help you hold your competitive position.



Cy S. Rossate, vice president-manufacturing for Admiral Corp. plants in Chicago, Harvard, Ill., and Shelbyville, Ind., has been given the additional responsibility for the company's subsidiary, Midwest Mfg. Corp. The subsidiary, located at Galesburg, Ill., produces Admiral appliances, including refrigerators, freezers, electric ranges, room air conditioners and dehumidifiers, as well as a variety of components. John Zahora has been named general manager.

Admiral also announced that President Ross D. Siragusa has been elected to the board of directors of General Aniline & Film Corp., New York City.

John Haher has been appointed sales manager for Cycolac polymers by Marbon Chemical Div., Borg-Warner Corp. He succeeds William A. Suiter, who was recently named vice president in charge of marketing for Marbon, producer of ABS plastic resins used for fabricating industrial and consumer products. For the past five years Haher has served as product sales manager of the Dayton Rubber Co.





HAHER

Harry Schmidt has been appointed production manager of Vidmar, Inc., Williamsport, Pa. Prior to his appointment he was chief engineer with Vidmar's parent company, Volkert Stampings, Inc. Vidmar manufactures steel cabinets for storage of industrial tools, parts, instruments, gages, accessories and sub-assemblies.

H. W. Whitmore has been named director of engineering by Friedrich Refrigerators, Inc., a subsidiary of Ling-Temco Electronics, Inc. He formerly held the same position with Norge. Friedrich manufactures refrigerated display cases and air conditioners.

Earl R. Trevor has been appointed director of manufacturing of Bryant Mfg. Co. He has been with Bryant since

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After 18 months rural exterior exposure, no differences were observed between the magnesium and aluminum panels. No undercutting or progressive spalling of the porcelain enamel from the bare edges of the panels had occurred.

#### Magnesium

- FROM PAGE 61

In a recent test run, panels of magnesium AZ31B-0 alloy sheet measuring 3 by 6 by .040 inches were porcelain enameled with a lead-bearing white system using this specific procedure:

- Ground coat and cover coats were ground according to the manufacturer's specifications.
- Magnesium panels were prepared as follows
  - a. alkaline cleaned 5 minutes in 6 percent sodium hydroxide plus 1 percent trisodium phosphate at 200 F
- b. cold-water rinsed
- prepickled 30 seconds in 20 percent acetic acid plus 8 percent sodium nitrate at room temperature
- d. cold-water rinsed
- immersed 2 minutes in 5 percent sodium bichromate plus 3 percent chromium patassium sulfate at room temperature
- f. cold and hot-water rinsed
- 3. Prefired 5 minutes at 975 F.
- 4. Sprayed with one double-pass coat of white pigmented ground coat.
- 5. Air dried 15 minutes Fired 6 minutes at 975 F.
- Sprayed with one double-pass coat of white pigmented cover coat.
- Air dried 15 minutes.
- Fired 8 minutes at 975 F.

Porcelain enameled magnesium samples have been subjected to accelerated tests and also tested in rural exterior exposure with good results. Comparative aluminum panels were prepared using standard procedures recommended for these alloys.

In a 20 percent salt spray test (500 hours exposure), no progressive spalling on either the magnesium or aluminum panels was observed. There was some corrosion undercutting on the bare edges of the magnesium panels.

After 12 weeks exposure to 95 percent relative humidity at 95 F, no differences between the magnesium and aluminum panels were apparent. There was no undercutting or progressive spalling of the porcelain enamel from the bare edges of the panels.

After 18 months rural exterior exposure, no differences were observed between the magnesium and aluminum panels. No undercutting or progressive spalling of the porcelain enamel from the bare edges of the panels had occurred.

In conical mandrel bend tests, the adhesion of the coating on magnesium was equal to that obtained with aluminum.

In the above tests with either leadbearing or lead-free porcelain enamels, only marginal differences between the magnesium and aluminum panels were detected.

Regarding elevated-temperature properties, magnesium-thorium alloys, which are receptive to the porcelain enamel coating, have been developed for use up to 800 F. This is also considered to be the maximum temperature the coating will withstand.

The newly developed porcelain enamel finishing system can be used with virtually all of the magnesium alloys. The exceptions are certain alloys which are excluded because the temperatures used in applying the coating result in fusion of the low-melting-point eutectic. An example are those alloys containing more than three percent aluminum.





What Ft. Knox is to gold, Southern Screw is to fasteners. Southern's Statesville stock carries over 1,500,000,000 pieces of 100% USA-made quality fasteners. Warehouses in New York, Chicago, Dallas and Los Angeles, plus a nation-wide network of wide-awake Southern distributors, means that you can use the local source for Southern fasteners as your stockroom

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#### **Personals**

-> FROM PAGE 100

1954. He will be responsible for the manufacture of a full line of products, including gas and oil-fired furnaces, electric and gas air conditioning, boilers, automatic valves and pilot lights, and air drying equipment.

John S. DeMetrick has been named vice president in charge of engineering for Automatic Radio Mfg. Co., Inc., Boston. He has been with the firm 28 years, progressing from radio service manager to his present position.

Robert C. Palmer has been elected president and a director of The R. C. Mahon Co. He was recently associated with Ingalls Iron Works, Birmingham, Ala., for 28 years. Walter F. Sheetz, who joined Mahon in 1912 and was named president and director in the mid-1950's, continues his association with the company as chairman of the board, treasurer and chief executive officer.

Charles M. Hargraves has been named manager of the Industrial Equipment Div., The R. C. Mahon Co., Detroit. In his new capacity, he will head the firm's division which supplies highly specialized metal cleaning and painting equipment, complete finishing systems and other engineered processing components to most manufacturing fields.





PALMER

HARGRAVES

Roy C. Compton has joined Caloric Appliance Corp. as division manager of the firm's Great Lakes sales division.

Francis Bonan has been named assistant sales manager of The Iona Mfg. Co., Inc., Manchester, Conn. The company manufactures electric food blenders, mixers, electric can openers and drink mixers.

Allen L. Lockwood has been appointed vice president in charge of sales at Pioneer Mfg. Co., Los Angeles, and Arthur J. Pollara has been named assistant sales manager, a new position.

#### **GAMA-AHLMA-NEMA**

- FROM PAGE 37

as the "Flameless" campaign. He stated that our real competition is with the 25-cent clothes line. "As a start for the full development of these 'new frontiers' in the home laundry industry, I would like to propose the formation of an industry committee to include representatives from the utilities, manufacturers, dealers, associations, and the press," Farr said.

Homer L. Travis, vice president, Kelvinator sales, American Motors Corp., stated that the home laundry appliance industry must step up its program of voluntary cooperation to insure honest advertising of its products, or face the possibility of government intervention by the FTC. He said improvement in advertising practices have been made since the adoption last year of the AHLMA Guide to Recommended Advertising Practices. "We must maintain this record of improvement, and we must step up the tempo of our voluntary program," Travis said.

On the second day of the AHLMA meetting the associate members presented a program on "Prophets for the Sixties." The meeting was handled by D. M. Strathearn, associates committee chairman, and vice president and general manager, Appliance and Automotive Division, Controls Co. of America.

In his talk, "Reliability — A New Found Significance in the Atomic Age," Dr. Everett Cox, manager of research, Whirlpool Corp., pointed out that with the atom bombs, reliability was to be so great that only one failure in a million was to be allowed. He suggested that, in order to achieve reliability, manufacturers should: 1. Hire and keep reliable people. 2. Refrain from putting a man in charge of quality control unless he understands the meaning of reliability. 3. Give the quality control man authority separate from manufacturing. 4. Learn the failure probability of components. 5. See that suppliers improve it, etc.

George A. Henderson, principal reliability engineer, technical and research staff, The Martin Co., said quality is a part of reliability and reliability is a design objective. He said the answer to reliability is to produce better components.

Other speakers during this session were: Dr. Franklin H. Wells, director of research, AMP Inc.; and Dr. Friedrich W. Schwarz, general manager, Electron Div., Controls Co. of America.

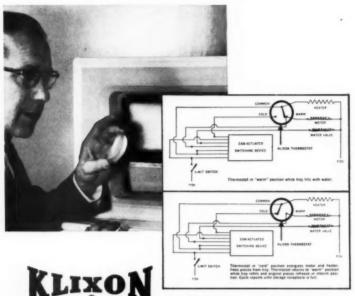
The final speaker of the day was S. J. Tesauro, S. J. Tesauro Co., who informed his listeners of the approaching availability of statistical information tabulated from the U.S. census which he believes should meet the need for better marketing information.

TURN PAGE FOR NEMA REPORT



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# Behind this piece of ice... an "engineered cold snap" for low cost sequential freezing!



fixed temperature thermostat accurately senses temperature cycles!

Behind the piece of ice held by H. C. Shagaloff, Chief Engineer of Servel, Inc., is their new "packaged" ice harvesting unit for domestic refrigerators. The positive snap-action of the KLIXON thermostat's bimetallic disc, as diagrams show, instantly activates heater,

show, instantly activates heater, motor, or freezing unit in proper sequence . . . eliminates the hunting action of creep type controls . . . insures accurate temperature repeatability. Flexible design and small size permit mounting thermostat at optimum control point.

With price a major factor, the Servel unit had to be designed to combine simplicity with reliability. Servel engineers accomplished this by cam-actuating a bank of switches which control filling, freezing, momentary heating to free pieces, and refreezing, all in proper sequence.

Once again a major manufacturer, recognizing QUALITY YOU CAN COUNT ON!, specifies KLIXON Thermostats for a quality product. For further information, write:





KLIXON Thermostat located in good thermal contact with end of tray.

#### METALS & CONTROLS INC.

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CORPORATE DIVISION O





INSTRUMENTS

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The Consumer Product-Div., National Electrica NEMA Manufacturers Association, re-elected Homer L. Travis chairman, and named Jack Sparks vice chairman at its second annual meeting. Travis is vice president. Kelvinator sales, and Sparks is vice president, sales, RCA Whirlpool. The electric range section re-elected Robert Brintnall, general manager, range division, Whirlpool, as chairman of the section. The household refrigerator and freezer section elected Walter A. Wendler, vice president in charge of sales. Amana, as its chairman. The electric dishwasher section elected Samuel Regenstrief, president, Design and Manufacturing Corp., chairman. The room air-conditioner section re-elected L. M. Larkin, general manager, Air Conditioning Div., Whirlpool, chairman.

Hickman Price, Jr., assistant secretary of commerce, predicted the country's gross national product would reach an annual rate of \$519 or \$520 billion in the fourth quarter of 1961, a "considerable" gain from the recent level.

Homer Travis stated that among the division's major accomplishments for the past year were: major improvement in statistical data forecasting; big strides by the air conditioning section; the placing of the promotion budget on an annual basis; and improvement in the relationship with FTC.

Al Lowe, manager, LBE program, Edi-



Homer L. Travis (left), re-elected chairman of the NEMA Consumer Products Div., receives congratulations from R. D. Smith, secretary of the division.

son Electric Insitute, pointed out that the EEI has spent two and ½ million dollars a year on the LBE program for the past three years. He said that they conducted a motivation study in 1960. This study indicated that the consumer feels the cost of electricity is high and, that in promoting appliances, you should show benefits to the entire family and drop

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## editorial voice of the national safe transit program

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DANA CHASE PUBLICATIONS, INC.

Devoted to improving packaging, shipping, and materials handling methods for the appliance and metal products manufacturing industries. This section contains information on plant experience and industry advances for improving packaging and shipping methods, and prevention of in-transit loss. It also contains information on the National Safe Transit Committee's preshipmet testing program and reports on NST activities.



First units of completely accumulated 32-foot trailer load entering trailer. Guides move two-high pallet loads into correct position on conveyor lanes. Air chain then picks up load and carries it to front of trailer.

#### Handling palletized loads automatically

A NEW AUTOMATIC method of handling palletized loads of materials is said to offer a way to substantially reduce intra-plant handling costs between the production line and shipping docks or in warehousing operations.

Built by Alvey Conveyor Mfg. Co., St. Louis, the system can also be used in trailer loading or as an accumulating line for outgoing materials. The equipment is called the Air Chain Conveyor System.

#### Two rows of rollers

Air Chain consists of two rows of roller conveyors with a drag chain centered between the rows to provide movement to the pallet loads. The drag chain rides on a flexible spring-steel wearing strip which rests on an inflatable rubber hose approximately two inches in diameter.

Inflating the hose causes the chain to raise to the level of the rollers in the roller conveyor. If there is a pallet on the roller conveyor, the chain will then press against the bottom of the pallet and movement of the chain will move the pallet. The amount of pressure of the chain against the bottom of the pallet can be varied by the amount of air pressure in the hose.

"All manufacturing, engineering, and quality efforts are in vain if the product reaches its destination in a damaged condition." Therefore, the amount of air pressure in the hose can be balanced so that there is just sufficient pressure to cause movement of the pallets, but not enough to cause a large amount of pressure build-up once the pallet has come up against a stop or to the end of a truck.

#### Becomes ordinary roller conveyor

With the hose deflated, the Air Chain conveyor becomes an ordinary roller conveyor, along which the pallet loads can be pushed manually.

The air system consists of an air tank which has a built-in hand pump for the purpose of maintaining tank pressure in the area of approximately 40 psi. This tank serves as an air supply for the conveyor. Constant live pressure of approximately 5 psi in the hose underneath the chain is maintained by a pressure regulator. This regulator can be adjusted to provide greater or lesser pressure as requirements dictate.

The continuous chain can be driven either by a gasoline engine, electric motor, or its power system can be coordinated with other power-driven production equipment — as an accumulating line, for example.

#### System used in plant

In the plant, the system can be used to receive palletized loads from a truck equipped with Air Chain, or forks can transfer palletized loads received by ordinary truck to the Air Chain unit, to be fed into production lines.

Also, the equipment can be used to load accumulated pallet loads of outgoing material onto an Air Chain equipped truck, or accumulated pallet loads can be fork-lifted from the Air Chain unit and moved onto an ordinary truck.

Conveyor bolts flat to, and becomes part of, the bed of the trailer.



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For full information, write or call: Mr. Charles Streck, Chicago Metallic Mfg. Co., Lake Zurich, Ill.

#### GAMA - AHLMA - NEMA

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the idea that they give the housewife a lot of leisure time. He said the key word in the new program would be "Flameless" as it was this past year. A total of \$53 million will be spent by EEI, utilities and appliance companies.

Mort Farr also spoke before the NEMA group. He blasted the "Flameless" campaign - he said the dealers don't want it. He urged more promotion on: nofrost refrigerators; the automatic ice maker; and once again urged promotion of top-of-the-line rather than the low cost models. He said there is a great need to sell dishwashers, combos, and color TV, and that there should be a more orderly system of distribution so that the dealer can make a reasonable profit. Farr stated that dealers still sell 40 percent of all appliances. He said mass merchandisers do not create markets they sell one or two lines at cost or 10 percent above to create an image of low cost, but in actuality they are not. He feels that if manufacturers would stick to their prices, it would be a much healthier industry. \_\_\_\_\_MPM

#### O'Keefe & Merritt

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QUESTION: How about the manufacturing end of the business? Are any efforts being made here to improve the company's profit picture?

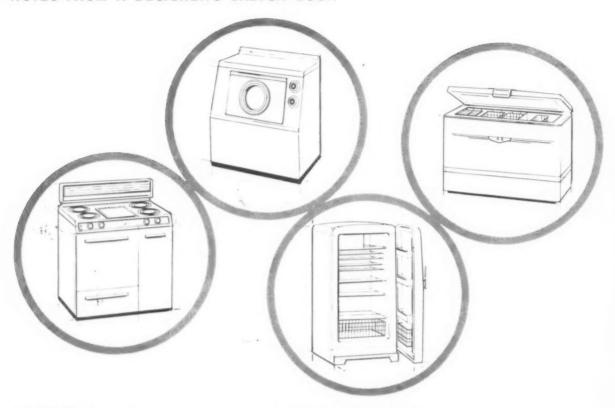
MOYER: Since last fall we have been in the process of reducing costs here in the O'Keefe & Merritt plant. This program embodies streamlining production lines, changing plant layout, and improving the training of our employees. We have also been adding new equipment.

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